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'We will make it work' Wilmot tells the CSA

by Kevin Cahill

THE deal that ICL is offering software houses will work this time. That was the message Robb Wilmot gave an audience of Computer Services Association members, along with an acknowledgment that ICL had frequently got it wrong in the past.

He told the guests at the association's Annual General Meeting luncheon that ICL was now offering software and system houses unqualified inclusion in the ICL software catalogue, which would be going to 86 countries. Previously ICL had attempted to vet each product offered by a non-ICL source.

He also offered the software houses the use of ICL premises overseas, an offer which must be very attractive to the many software houses marooned in the stagnant waters of the UK economy.

But Wilmot intends to be tough with those who break the, as yet unwritten, rules which will govern who does what in the partnership with ICL.

"There will be certain rules set down for behaviour, and disciplinary measures will be drawn up for those who break them," he said.

Wilmot also indicated that ICL was willing to go much further than any other company in releasing software and operating system specifications to the software houses. The releases would include interface specifications, he said, and he indicated that over 150 had been released so far.

There would be arrangements for software suppliers to test and run their products in conjunction with ICL on ICL equipment, and software vendors would be invited in as consultants on ICL turnkey projects, including work on the new Atlas 10 and 25 range.

The offer of the use of ICL premises and the opportunity to go in with ICL to its customers' sites, appears to represent a far higher level of commitment than is shown with other vendors' offers.

Digital Equipment, DEC, a pioneer of the idea that the parent supplied the hardware and systems software and the software houses supplied the applications software, produces a software directory, but vendors have to buy DEC kit to test and develop their systems.

DEC has always advertised the concept of third party benefits and its president, Ken Olsen, said that the object of supplying equipment like DEC's was to help make a lot of people rich.

Wilmot echoed the same idea when he said: "We are all going to sell more."

The reaction of the audience was mixed. Representatives inquired how old and unresolved disputes would be settled. Wilmot gave them names, winding up with his own "if you can locate me". But there was a strong feeling that while Wilmot was in charge things would, as he claimed, work.

IT city of Europe

by Robert Parry

WITH the formation of an information technology policy advisory group, Milton Keynes is gearing up to become the Information Technology city of Europe.

Many leading lights of the UK IT business make up the group, which is chaired by Sir Henry Chilver, vice-chancellor of Cranfield Institute of Technology and chairman of the NEDC's electronics development committee.

Milton Keynes' IT strategy is to make it the foremost city in Europe for the practical application of IT at work, in the home and in the community at large. The advisory group will review this strategy, using their own experience to identify opportunities for the city to set the pace.

Among the group members are ICL's Robb Wilmot, David Fairbairn of the NCC, Sir George Jefferson of British Telecom and Thorn EMI's Tom Mayer. The Department of Industry is represented by John Thynne, assistant secretary of the IT division. Eosys, formerly Urwick Nexos, was appointed to act as consultants last November.

The main element of the project is the setting up of an Information Technology Exchange to be opened later in the year. It will act as a focal point for the business community, giving advice and information, providing training and offering services and equipment to hire or buy.

Other aspects include the provision of a communications infrastructure using the existing cable network to bring TV to 20,000 households, and a trial optical fibre cable with British Telecom.

CHILVER . . . chairman of Milton Keynes' info tech group.

Civil servants take a hard line

by John Kavanagh

THE government faces the threat of industrial action over the introduction of computer systems following the rejection of a new technology agreement by the biggest civil service union, the Civil and Public Services Association, at its annual conference in Brighton last week.

And the new hard line on technology was backed up by elections which saw left-wingers taking over the executive committee.

These moves followed votes on motions censuring the existing leadership over last year's pay negotiations, which involved a five-month strike, and over the fact that the technology agreement was signed without consultation with members.

The CPSA's new general secretary, Alistair Graham, said the agreement – which runs until the next general election in two years' time – was the best that could be expected from the Conservative government. He argued that rejecting it could only mean industrial action against new computer systems. He and supporting speakers were sure members would not strike over such an issue.

GRAHAM . . . "Members would not strike."

Graham said a stand against new systems could threaten jobs because rising costs would see management turning to external contractors. Without an agreement members would be defenceless.

But Graham's opponents saw it as favouring only the management. They said any agreement had to be tied to basic employment conditions to bring a shorter working week, earlier retirement and longer holidays. They were angry at a clause which recognised that jobs would be lost as a result of computer systems.

Hard words came in particular from Rod Bacon from the Department of Health and Social Security, who proposed the censure motion over the technology agreement. "We will need rallies and meetings and in the end we will have to take massive industrial action," he said.

"New technology is the biggest threat to workers in this country. We must take the lead and persuade the other civil service unions to change their minds and join us."

Summing up, Graham said, "Ordinary members simply won't take industrial action over an abstract concept of no job loss with computer systems.

"The whole experience of the trade union movement shows that it's ludicrous to say we're better off with no interim agreement at all. Who can say that Labour will storm back in two years' time and give us everything we want? I certainly won't."

US micro firm takes control

by Boris Sedacca

CALIFORNIA based Alpha Micro Systems has acquired Alpha Micro Systems (Europe) from Alpha Micro Systems UK for $900,000, including the UK network of 38 dealers.

At the same time Alpha Micro Systems UK has changed its name to Alpha Computer Systems and will continue to handle certain key accounts for the machine. The company was making losses up to and including last October but made a net operating profit from January to April this year of £419,000 with an exceptional item including the sale of software to the US company.

Alpha Micro systems were first launched into the UK market by Computer Marketing, subsequently renamed Comma Computers. Comma then bought Micro Software Systems in June 1979, a 12-man software house started two years previously by four ex-TOPS programmers.

The MSS staff left Comma in early 1980 to join Alpha Micro Systems UK, a company set up independently of the US manufacturer with sole distribution rights to the machine for the whole of Europe, with Leslie Button as managing director.

Marketing chiefs quit

by Howard Karten

SEVERAL top marketing managers at Datapoint in the US made sudden resignations last week. The resignations appeared to be connected with an audit currently being carried out on the company's third quarter financial results.

The Texas manufacturer declined to comment on the reasons for the resignations. However, Datapoint's auditors are currently investigating a number of unusual situations involving Datapoint's third quarter result.

The situations are believed to centre on orders that were originally recorded as sales, but which were later refused by the buyer. The revenues were apparently recorded on Datapoint's books and were later cancelled.

For the quarter ended January 21 Datapoint recorded a profit of $11.2 million, down from the $12.1 for the same quarter 1980-81.

Datapoint UK is not associated with its parent's problems.

THE JAPANESE CONNECTION

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Announcement expected on supply of system to Bank of England and Stock Exchange

Three firms bank on gilt-edge contract

by Andrew Thomas and Our Parliamentary Correspondent

THE prestigious contract to supply the Bank of England and the Stock Exchange with a computerised system for the transfer of gilt-edged securities should be awarded this week. It is almost five years since a committee was set up to study the project.

IBM, ICL and Tandem are believed to be the three manufacturers on the short-list for the order. While the £1.25 million hardware value of the contract is not enormous in the banking world, the kudos it brings with it will be a significant fillip to any of the three companies' attempts to expand their banking presence.

An enabling Bill to authorise the setting up of the system obtained an unopposed Second Reading in the House of Lords last week. A change in the law was required to provide for the transfer of stock other than by an "instrument of writing."

The present procedure of transfer through a written instrument has caused considerable strain because of the increase in the activity in the gilt-edged market. The Bill lists the 200 securities to be covered by the system, and also provides for drawing up regulations to deal with the storage and eventual destruction of documents relating to local authority stocks and bonds.

The Bank of England and Stock Exchange system for transfer of specified securities, called BET, will be based on two minicomputers linked to a nationwide communications network, with a service to 275 users initially. It will provide a means of moving gilt stocks from one stockholder to another without the need for transfers or certificates when the stockholders involved have accounts within the system.

Subscribers will have to pay a charge to participate.

The BET system is to be financed jointly by the Bank of England and the Stock Exchange.

The initial capital outlay is in the region of £1.25 million, and annual operating costs, including leasing charges, will run at just over £1 million.

The BET project is scheduled to take three years to go live. The first year involves the specification of the detailed system to program specification level, the second will see the installation of the hardware and communications system, and year three will be spent testing the system. It is expected that more than 30 jobs will be created.

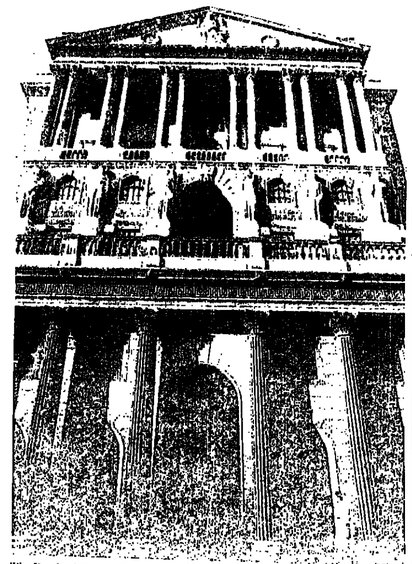
Sources at the Bank of England indicated that a "fair amount" of new hardware is to be installed, and that negotiations with the three firms asked to tender had reached a "commercially sensitive stage".

"You'll be hearing something very soon," said a Bank of England spokesman.

This step towards modernising both the Bank of England and the Stock Exchange was warmly welcomed by peers on both sides of the House of Lords, and Lord Terrington (Ind) said that computers already in use had proved extremely reliable and the new systems would be a further step forward.

The Stock Exchange has had a computerised settlements system for jobbers, called Talisman, for some years.

Lord Bruce wanted written into the Bill that the computer terminals would be sited in the UK. This was confirmed.



The Bank of England: £1.25m partnership with the Stock Exchange.

Lack of DP staff in City

by Boris Sedacca

INCREASED banking activity is threatening to catch the City with a shortage of skilled computer staff.

International banking operations in the City of London, which are growing at an annual compound rate of 37%, are the main cause of the pressure.

Although London is facing strong competition from New York to become the world's leading financial centre, it has more applicants wanting to become licensed deposit-takers than at any time previously.

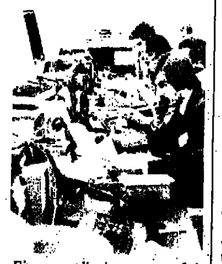
Even New York banks have been hit with computer staff shortages and have begun recruiting in the UK.

But London branches of overseas banks are having their own problems. A data processing manager for the London office of another leading New York bank says that analysts who really understand user requirements in banking are very thin on the ground.

"Staff which have been adequately trained number in their dozens at present rather than in their thousands as is the case with payroll programmers for example.

"Finance applications are one of the greatest growth areas for computer staff, comparable to areas like database management systems. When we get new staff in, they go through a stiff training exercise and it takes about 18 months to get them to a basic level of competence – three years to make them fully familiar with our systems."

Over 35 new licensed deposit-takers were allowed into London last year, bringing their total to over 400. According to Emlyn Williams, a director at international banking specialist firm Lombard Systems International, there are 87 new applicants this year, and more will be allowed in than last year.



Finance applications are one of the greatest growth areas for computer staff.

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NEWS BRIEF

CDC to sell micros

CONTROL DATA is the latest computer manufacturer to enter the microcomputer market. It is to sell the Altos ACS8600 16-bit micro through its business centres in the US. Altos says it expects to ship between 3,000 and 5,000 units to CDC over the next five years.

First shipments will be in December. There are no known plans to bring the machine to the UK.

Payroll changes

THE new sickness pay and benefit rules come into force on July 14 and will immediately alter over 20 million contracts of employment with far-reaching consequences for computerised payroll systems. The full extent of the changes will be clear when the Department of Health and Social Security publishes its employers' guidelines next month.

Extel buoyant

CITY-BASED information supplier Extel showed gains in both profit and turnover for 1981/82. Sales rose 14.8% to £99.19 million and profits went up 2.7% to £4.45 million. Extel is understood to be pursuing takeovers in the computer sector and has a microelectronic manufacturing facility under construction in the Thames Valley.

China go-ahead

A MAJOR conflict within the US administration over the strategic materials embargo which prevented delivery of a Japanese-built mainframe to China, has been resolved. Hitachi, which received an order in 1979 for its big M180 to be delivered to an unspecified Ministry in Beijing, has said it will be delivered in two months.

£½m loss threatens govt loan scheme

by Kevin Cahill

A POSSIBLE change of heart by the government over the loan guarantee scheme is threatening the hopes of hundreds of small company entrepreneurs in the computer industry.

The scheme, under which the government guarantees up to 80% of a loan made to a company by a bank, and which does not require that an entrepreneur commit personal security, is threatened because of losses of over £500,000.

Following evidence to a House of Commons committee last week by John McGregor, an Industry Minister, many commentators believe that the government will announce changes, to include borrowers taking up part of the guarantee burden themselves.

According to Phil Colyns, a director of Scribe Computers, which was recently set up with the aid of a government loan guarantee, this would stop many people from starting out on their own.

"The whole point of the scheme was to give an entrepreneur a real uninhibited opportunity to build a company without the additional worry of putting up his home as a security as well."

The scheme has been used to give £62 million to entirely new companies, over 300 of which are in the computer sector.

So far the government has lent a grand total of £131 million, of which £500,000 has been lost.

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Burroughs new president takes over in top level shake-up

by Kevan Pearson

A NEW man has taken control of the day-to-day running of Burroughs in the US. Paul Stern, previously executive vice-president, has taken over as president and chief operating officer.

He replaces DuRay Stromback, who is to retire at the end of the year. He will continue as vice-chairman until then. Burroughs denies that he is being asked to step aside.

The move is seen by Wall Street sources as completing the managerial changes which began with the appointment of Michael Blumenthal as chairman 18 months ago. Since then Blumenthal has put outsiders into 20 of the top 25 positions at Burroughs.

Stromback was appointed to the presidency at the same time as Blumenthal became chairman and chief executive.

The board has also approved changes in the managerial structure of Burroughs, which will simplify the control of the company and put Burroughs' full weight behind the "line of business" marketing policy which the company talked about eight years ago. This divides Burroughs' marketing into specific industrial sectors rather than across the full spectrum of computer users within geographic areas.

In the UK, Burroughs' image continues to improve. There was plenty of support for its latest products at the recent UK meeting of the Association of Burroughs Computer Users, says ABCU chairman Eric Holloway.

Of particular interest was the Lincs software generator package, which Burroughs claims can cut system development time by up to 90%.

Holloway said the system was "very impressive", provided the claims could be substantiated. He added that his own company, Alcan, would be having a demonstration of the system to determine its usefulness. Lincs was developed by a New Zealand software house, and has been purchased by Burroughs for worldwide distribution.

Burroughs' Ofis 1 office automation system also attracted a lot of interest, and the conference decided to form an Ofis interest group to work with Burroughs in this area.

BLUMENTHAL . . . Bringing in outsiders.

Annette Goedhart of F International's Amsterdam office answers inquiries as chairman Steve Shirley (right) looks on.

CSA goes overseas—but turnout for software seminar disappoints

POOR attendance at a seminar aimed at promoting British software expertise marred what was otherwise a successful first collective overseas exhibition venture by the Computing Services Association.

The show was Europe Software 1982 in Utrecht last week, and most British companies that took advantage of the CSA's joint exhibit were well satisfied, according to director general Dr Doug Eyeions.

The show provided cheap low-risk exposure to the Dutch market, although any exhibitor expecting the event to live up to its grandiose name and attract a pan-European audience would have been disappointed. Nearly all who attended were from the Netherlands.

About the seminar held next door to the main exhibition hall Eyeions remarked, "The British Embassy in the Hague were responsible for finding an audience for us, and they told us a week before the show that they were expecting 100 people, including more than 50 who had given written acceptances – all senior people from the Dutch industry. But only about 20 turned up. I don't know why. I suppose the CSA should have handled the invitations itself."

Peter Davies, commercial counsellor with the British Embassy in the Hague, admitted that the turnout was disappointing. "More than 200 Dutch people were invited. We registered 38 people who turned up but that included CSA members.

"We intend to ask people who sent written acceptances why they didn't attend, and also to send copies of the seminar papers to all those invited.

Apart from Doug Eyeions, speakers at the seminar included CSA president Roger Graham, Hoskyns Group marketing director Brindley Reynaud, and chairman of F International Steve Shirley.

Any disappointment Steve Shirley may have felt about the seminar was more than compensated for by her delight with the interest in F International's exhibit.

"We have made more impact in Holland with our stand at Europe Software than we have made in the four years that we've been operating here. The sales inquiries we have picked up are like gold dust," she said.

NEWS BRIEF

GEC may buy West German giant

AFTER five years of losses, West German electrical giant AEG Telefunken looks set to break up, with GEC of the UK a potential buyer of the company's electronics subsidiary.

AEG is one of West Germany's biggest electrical manufacturing concerns with interests in a broad range of electronics and related fields. Although the data processing and electronics business is thought to be profitable, the consumer electronics divisions have persistently forced the company into losses.

More power

BRITISH minicomputer manufacturer CTL has enhanced its IBM communications support. It has launched a more powerful version of the 3270 emulator. The new product will allow any CTL system using the company's ICE network to act as a cluster controller supporting up to eight workstations.

Software release

MINICOMPUTER manufacturer Computer Automation in Rickmansworth has released a software package to link its SyFA users within an existing SNA network to a host IBM mainframe. SyNET, already installed at Rank Hovis McDougall's IBM-based centre, enables the user to collect data from SyFA node processors for storage on the host machine, or to distribute it to them, and to initiate utilities remotely.

Thousand sales

SALES of ICL's System 25 minicomputers have exceeded 1,000, less than a year after launch. The company has also reaffirmed System 25's place in its product line with the announcement of additional facilities, including a new processor with 50% more performance.

Intel strengthens hold on 16-bit market with five-year expansion plan

by Robert Parry

ON the heels of National Semiconductor's official release of its new high performance microprocessor family comes fighting talk from Intel.

With its iAPX 186, a more powerful and highly integrated version of the 8086 16-bit processor now available for sampling, Intel claims a ten-fold improvement in performance/price ratio and the disappearance of the cost hurdle in moving from eight to 16 bits.

Within the next five years, Intel plans to introduce over 70 new processors and support chips. In the high performance microprocessor market these will include market segment oriented versions of the iAPX 86 family – integrating tasks on to the processor chip for particular applications such as robotics, personal computing and word processing – and a 32-bit version, the 386.

By pulling support functions on to the main 186 processor chip, Intel reckons it has reduced the cost of components for a typical 16-bit application to less than half that of an 8086-based kit, and only a little more than an 8-bit 8085 system.

In large quantities Intel estimates the 186 plus two latches will cost about $36, compared to $74 for an equivalent 8086 system with about 20 separate chips.

"It will allow Intel to penetrate key markets," says Microprocessor and Development Systems Division general manager Dave House, "and will have a profound business effect. It will convert a significant proportion of the 8-bit market to 16 bits."

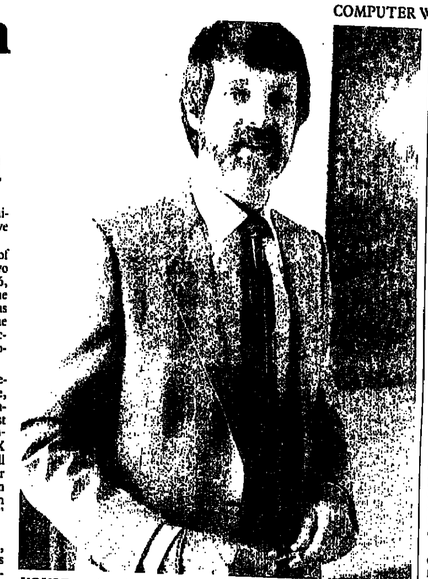
While House still sees shipments of the 8086 increasing over the next few years, he feels customers will move over to the 186 for new designs. "I expect the 186 to become the favourite over the next couple of years."

He dismissed competition from NatSemi's new chips (see page 6) – "they are too late" – but sees two main rivals: Motorola, offering an alternative chip architecture, and Jupan as an alternative hardware source.

The 186 ties up the range of processors promised by Intel two years ago. These included the 186, 286 and 432 at the top end of the 16/32-bit scale. The 32-bit 432 has a different architecture from the others, an object-oriented architecture which House thinks will dominate by 1990.

Meanwhile, the march of devices using the 8086 architecture, targeted at data processing applications and traceable back to the first microprocessor, Intel's 4004, continues. A 32-bit device, the iAPX 386, is scheduled for 1984. It will be compatible with the earlier chips. Like the 286 it will have an emulation mode enabling it to run 8086 software "blindingly fast," says House.

The 386 will have a 32-bit bus, Multibus II, and be able to address large data structures using 16-megabyte segments.



HOUSE . . . Opening up the 16-bit market.

Graduate list set up by NCC

by Andrew Thomas

THE National Computing Centre has set up a register of graduates seeking employment in the computer industry in an attempt to reduce the shortfall of experienced staff. A survey carried out by the NCC and Computer Weekly in December showed that there were 11,000 fewer applicants than vacancies at all levels.

Alan Lewis, a senior consultant for the Careers Projects Division of the NCC, claims that the problem stems from a failure by employers to recognise that new talent must be brought into the industry. "If investment in training is not made, the supply of experienced staff will dry up, he said.

The register, at present restricted to the North-west, contains details of graduates who have expressed an interest in working with computers and who have successfully completed a four-hour test for suitability as programmers or analysts.

Prospective employers are offered a selection service, and are furnished with a short-list of the five graduates deemed most suitable for their needs.

Govt accused of 'fudge and compromise' on data protection law

by Our Parliamentary Correspondent

THE government has refused to give any firm undertakings to include data protection legislation in the next parliamentary session. But Home Office Minister Timothy Raison again confirmed that the government was committed to making progress on the issue.

Raison was replying to criticism in the Commons of the government's White Paper on data protection. Andrew Bennett (Lab, Stockport North) called the White Paper an example of "fudge and compromise" satisfying nobody.

Bennett said during Commons questions that the White Paper would not give genuine protection to the individual and was in danger of setting up a bureaucracy which would achieve nothing.

Raison acknowledged that the comments so far received included criticisms of features of the proposals. But he reported that there had been widespread acceptance that the government's approach was a reasonable and balanced one.

Bennett's "tired platitudes" did not help, the Minister said. The government believed that legislation would prove right and would be widely accepted.

Geoffrey Dickens (Con, Huddersfield) asked for a review within 12 months if the data protection procedures outlined in the White Paper proved ineffective.

Robert Cryer (Lab, Keighley) protested at the lack of any provision in the White Paper for the protection of the accumulation of data in the £20 million special branch computer. But Raison said it had been made clear in the European convention on the subject that matters involving State Security were exempt from legislation.

Portable word processing terminals take off

By Boris Sedacca

PORTABLE text entry terminals from which blocks of text may be dumped to full-blown word processors are taking off.

Three manufacturers last week demonstrated these terminals at the International Word Processing Exhibition held at the Wembley Conference Centre, London.

Philips showed its new £850 Satellite system. It has a full-sized word processor keyboard with a half-line liquid crystal display and cassette storage for entering and holding blocks of text which may subsequently be input to a Philips word processor.

The Satellite has limited word processing facilities, but Philips' competitive advantage is based on the number of word processing bureaux it has around the country.

Microwriter has been longer established in the market with its £485 hand-held terminal (see page 5). Although the machine has more powerful word processing facilities than the Philips Satellite and can be connected to a video monitor or domestic television set, it is trying to convert users from the standard qwerty keyboard to more efficient single-handed operation on a six-key keyboard. Further Microwriter text can only be dumped on to two micro-based word processors – the Triumph-Adler Alphatronic and the Apple.

Fitting half-way between the two in terms of dimensions is the new Sony Typecorder, weighing three pounds and powered by four rechargeable penlight batteries or car cigarlighter. The Typecorder has a qwerty style keyboard and doubles as a dictation machine using the same cassette drive. Its disadvantage is that it uses a non-standard Microcassette.

One exhibitor makes a living from allowing different word processors to talk to each other through a media conversion service.

The company, Advanced Data Communications, also provides phototypesetting direct from word processors, and an optical character recognition service which allows users to have text scanned from a typewritten page and input directly into a word processor or converted to a floppy disc format for the major makes.

'Scrap Prestel index' —Consumer Council

by Andrew Thomas

MATERIAL held on Prestel is not subject to stringent enough testing before being introduced, and the indexing system is frustrating for users, according to a report published by the National Consumer Council*.

The report, prepared by E. Scott Maynes, professor of consumer economics at Cornell University in the US, says that British Telecom should introduce lower charges for private users in order to establish a domestic market.

Maynes cites several shortcomings of Prestel, including the lack of testing before material is introduced to the system, and advises that the hierarchical indexing system, designed for ease of use, should be scrapped. Some subject headings are ambiguous, and there is nothing to warn users if the information they require is not available, he says.

Fifteen questions were devised to test the system. Answers to these questions were either highly satisfactory or highly unsatisfactory.

The main recommendations of the report include the replacement of the existing tree index with something which will minimise the possibility of wild goose chases, save money, time and psychological effort when searching for information, and maximise the probability that the consumer will obtain the data required.

Maynes envisages a system which will operate using several keywords which together might solve the consumer's problem with a single inquiry.

A possible alternative would be the revision and expansion of the printed classified index, rather than reliance on the internal index.

*Prestel in Use: National Consumer Council, 18 Queen Anne's Gate, London SW1. £2.00.

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BGS drops Logica as UK agent

by Andrew Thomas

BGS SYSTEMS, which specialises in capacity planning products, has dropped Logica as its UK agent.

The US company is to launch a direct marketing campaign for its packages in the UK. Its products, such as Best/1, Crystal and Capture/MVS, have been supplied to more than 300 large installations, mostly in the US.

Nick Kenyon, manager of Logica's capacity planning division, expressed surprise at the BGS decision to go it alone.

"As far as I'm concerned, we're still negotiating deals with BGS for their products. Beyond that I'm not prepared to comment," he said.

Robert Goldberg, BGS vice-president and co-founder, was in London last week for the start of the UK campaign. He confirmed that his company was cutting out Logica. "I believe we can give a better service to our customers by dealing with them direct," he said.

"There is a real need for accurate capacity planning and predictive tuning in the UK, especially in the banking field. I believe that the UK is several years ahead of the US in this area."

Goldberg believes most large users have the capability to perform their own capacity planning, and prefers to sell BGS products rather than offering a one-off service.

KENYON . . . Surprised

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HP optimistic as its growth curve mounts

by Kevan Pearson

WITH most of the growth in the computer industry over the next few years in small systems and the IBM market, including plug compatible manufacturers, the other major mainframe manufacturers could be in "deep trouble".

But Hewlett-Packard's position in the market – with systems costing under $300,000 – should leave it well placed to meet its widely stated ambition of becoming the third largest computer manufacturer behind IBM and Digital Equipment by 1985, according to Paul Ely, corporate head of HP's computer division.

HP is where the growth is, says Ely, who predicts that by 1985 "sales of computer sytems costing between $20,000 and $300,000 will constitute half the total of all computer business and will equal sales in the mainframe market."

HP's 34% growth in 1981 put it in seventh place in terms of dollar revenues, behind most of the established mainframe makers. What distinguishes HP from the others (except DEC) is the fact that its growth rate is more than twice the industry average of 14%. Its growth is also more than twice that of its rivals in the race – the established mainframe manufacturers Sperry Univac, NCR and Burroughs.

On the face of it, HP's top-line computer, the HP 3000, has been around for a long time, and even the top model does not allow 32-bit addressing, unlike DEC's VAX range and Data General's MV 8000.

This could be viewed as a serious drawback in HP's ambitious plans, but Ely does not think so. "Not many business applications require 32-bit addressing. It is important, but it's not the whole issue – overall performance is more important."

The HP 3000 series 64 is rated at over one million instructions per second, putting it well into the middle of IBM's 4300 range. "It offers twice the performance of the HP series 44 version, which itself was rated as twice as powerful as the series 40 machine. So in two years we have offered a ratio of improvement of four to one," says Ely.

Moreover, the 64 is a 32-bit machine in everything other than memory addressing, and Ely says it even has this capability. The problem is that the company's MPE operating system cannot handle 32-bit addressing, so to maintain upward compatibility HP had to omit it from the specification.

The company is committed to the high performance end of its market and plans to launch a fully fledged 32-bit general purpose computer within the next few years. "The problem," says Ely, "is now to change the operating system without the user knowing it."

HP is widely regarded as having taken the lead in the 32-bit chip set stakes when it announced its product at the International Solid State Circuits Conference in February this year.

The previous leading product was Intel's iAPX 432, but HP expects to have its product available for production machines by the end of the year. Its first appearance will not be in the 3000 series, however, but in the company's technical and scientific product range where the need for 32-bit addressing is more important.

There are already several products in this market like Apollo Computer's Domain and the Three Rivers Perq. "We are not going to compete head-on with them," explained Ely, "but they illustrate the point."

Of the Japanese threat, Ely thinks it will be beneficial to the industry in the long run. "The Japanese have opened a lot of eyes as to what is possible both in productivity and quality. They have changed expectations of what we can do."

Nor does he think that they can take on IBM in a big way, and he cites IBM's flat profitability over recent years as the reason why.

ELY . . . "Third largest by 1985."

SALES BRIEF

Bank spends £9 million on information

THE Royal Bank of Scotland h placed £9.3 million of orders f the third phase of its programm of equipping branches for growi Having started with cash machine in 1977 and teller terminals i 1979, the bank is preparing to in tall (from next spring) £6.25 mi lion of IBM minis and screen £1.4 million of Case communica tions equipment and £1.65 millio of Philips printers.

They are to be used in a cu tomer information system d signed, for example, to speed u personal loan negotiations or h print statements on demand.

Ferranti switch

FERRANTI has won a £3 millio contract the Foreign and Co monwealth Office for a messag switching system based on nin Ferranti Argus 700-GC minis i Whitehall and Buckinghamshir The system is to be fully open tional in 1984, replacing a largely manual system in handling me sages over radio links, leased line and the telex network worldwide.

Gulf system

HAWKER Siddeley Dynamic Engineering has won a £500,00 contract for a distributed data co lection system to be used in th Bani Yas power station being com missioned in Abu Dhabi by Joh Brown Engineering. The syste uses HDSE Sequel microproce sors and software developed by th Central Electricity Generatin Board using HDSE algorithms.

Amdahl pips IBM

BRADFORD based Empir Stores has installed an eight-Mby Amdahl 470V/7C mainframe to re place an IBM 370/158. The syste has 12 channels and it include Amdahl's accelerator feature whic allows extra power to be called u and paid for as needed. Th machine will run CMS teleproce sing software under VM and pro duction work under DOS/VSE i native mode.

B&B for WP

THE Bradford and Bingley Build ing Society is to install a Wang OI 140 model III to handle word processing, and is the society' first step towards an electroni office. The initial deal is worth £110,000, and later this year the system will be upgraded with the addition of an Alliance 250 syste providing database facilities for office staff.

ICL buys in US

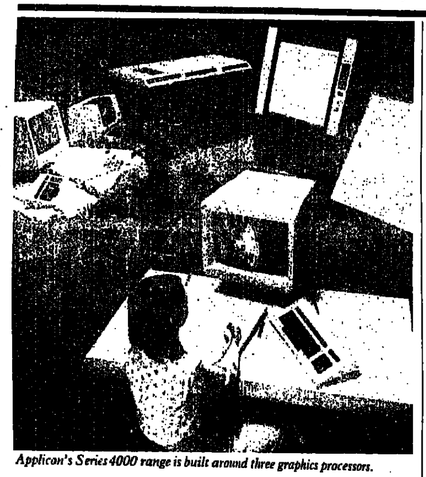
ICL has gone to Californian firm Xebec for supplies of disc control lers for its personal computer system. In a deal worth $6 million Xebec will start delivery of the $1410 5.25-inch Winchester controllers in July.

Data analysis

HUNTING Engineering has installed a £38,000 data acquisition and analysis system from Micro Consultants of Kenley in Surrey. The system, based on a Digital Equipment PDP-11/23 mini with Micro Consultants VHS 1 subsystem, handles 40,000 16-bit samples per second collected from acceleration, distance, pressure and temperature measurement de vices.

£40,000 order

PHILIPS has won a £40,000 order for a P4500 business information system from building contractor Longbarr Construction for its Newcastle head office. Longbarr bought a Philips P410 five years ago for payroll and other accounting work.



Applicon's Series 4000 range is built around three graphics processors.

More US firms release CAD systems in UK

by Philip Hunter

TWO more US companies have entered the market with cheap computer aided design systems. Applicon, which offers users a single system for £68,000, and Gerber Systems Technology with a basic system for under £50,000, released products in the UK at the end of last month.

Both systems are capable of expansion into networks more powerful than the companies previously had available.

Applicon has built its new range, the Series 4000, around three graphics processors and two workstations based on DEC equipment and operating systems.

Gerber's new system, Autograph, was built by taking the CPU out of Gerber's IDS-80 and CAD system and breaking existing software into more pragmatic applications modules.

The Autograph processors can be built into a network by linking them together, to remote mainframes, or to Autograph's IDS-80.

"The new systems are all the same so we can mass build them, whereas in the past they were built to order," says Gerber UK general manager Chris Bailey. That will allow Gerber to undercut many of its competitors, he adds.

Bailey thinks the CAD/CAM market will veer away from the larger, less flexible systems which grow by adding terminals to one central processor, such as GST's own IDS-80. With the dependency on one processor, they are more prone to system crashes, he says.

"I see the time when a four-terminal system will be four Autographs linked together," he adds.

Applicon's Series 4000 is window-dressed with new software aimed at extending the users' ability to establish their own networks and databases. There is also a new graphics language which provides more programming facilities.

Applicon germinated from the Apollo moon project in the US, which left a lot of unexploited technology in the public domain for all comers to exploit. It became one of the CAD/CAM leaders, and was eventually taken over by Schlumberger. Clients include Intel, which has 20 Applicon systems used in chip design.

"You can't design a chip without a CAD system," says Applicon marketing manager Mike Williamson.

650 car dealers on viewdata

by Donald Kennett

TALBOT Motor Company is going ahead with a viewdata system which will eventually be accessed from 650 Talbot and Peugeot dealers in the UK. The decision was made following a limited trial in which 30 dealers have used the system, called Vital, since last October.

The trial ran on a Rediffusion R1800/30 mini acting as an eight-port viewdata front-end processor attached to an Amdahl V6 mainframe. The mainframe runs the Adabas database management system and the Natural query language, also supplied by Adabas Systems. The links between the two machines use IBM 3780 terminal emulation, rather than the currently fashionable viewdata gateway concept, to provide online links into the database from the dealers' terminals.

The full system will need more ports than the R1800/30 can provide, and Talbot is currently choosing between a larger Rediffusion machine and Modcomp and Aregon systems.

Talbot's systems manager Neil Campbell said the system would require 32 ports by the summer and 64 ports within 18 months. Telephone charges will be minimised by installing four-port Codex concentrators in Bristol, Edinburgh and Manchester and an eight-port statistical multiplexer in London.

The company has also negotiated a bulk-order rental agreement with Vislonhire for the Philips 14-inch colour terminals that dealers will use. The total cost of the system is some £200,000, including telecommunications links and software.

Like a similar system installed by BL Cars, Vital will be used to locate new and used vehicles which meet a customer's choice of colours and features, as well as finding out the current status of orders already placed. But unlike BL's system, this information is accessed online, directly from the main database.

In BL's Stock Locator system the data is transferred from the main database every three days using Langton's Preview software to convert it into page format for storage on the viewdata system.

IBM machine speeds up firm's reactions

by Boris Sedacca

IMPROVED programmer productivity on IBM's new architecture System 38 has enabled at least one user to develop applications and to react more quickly to his marketplace.

The company, Record Merchandiser, of Hayes, Middlesex, has the biggest System 38 installation in the UK, a Model 5. Steve Nobbs, the company's financial director, said that his old System 3 Model 15 could not keep up with sales volumes.

Record Merchandiser has an annual turnover of £45 million, selling audio cassettes, records and video tape to large chain stores like Woolworth's and to specialised video retail outlets on a sale or return basis.

The company's products have a short shelf-life and low unit values, putting a premium on optimum stock control.

"When we first installed the system older staff members would not go anywhere near the screens – they even avoided the DP department. But now more people are using the screens, and this has resulted in a multiplier effect which has earned a lot of money for IBM but not an awful lot for Record Merchandiser," he said.

Nobbs said that conversion aids on batch applications from System 3 went very smoothly, with 229 batch programs and 111 sorts taking 16 man-weeks to convert. But conversion to interactive applications was not so successful.

"We had to convert 139 programs and this took much longer – about 34 man-weeks. It is not a good idea to develop System 3 batch applications to System 38 interactive working.

"We also had problems with our two IBM 3370 disc drives, both of which went over."

Subsystem lets users of LSI-11 upgrade

by Robert Parry

DEC LSI-11 users gained an upgrade path last month when Surrey-based Arrow Computer Systems launched the Buccaneer memory subsystem into the UK.

Built by Monolithic Systems of Colorado, the Buccaneer allows LSI-11 users to expand beyond 256K of memory without abandoning their 18-bit Q-bus peripherals.

With the Buccaneer, the processor can address four megabytes of memory. Both 18-bit and 22-bit buses are built into the backplane and communicate through a peripheral bus map board. This allows existing 18-bit DMA controllers and special purpose Q-bus interfaces to be used with the expanded memory. Compatibility with RSX-11M and RSTS/e operating systems is maintained.

"Each existing 11/23 user is a potential customer," claims Arrow's managing director Brian Ash. Prices start from about £4,000 for the basic chassis with the peripheral bus map board and back-plane. An LSI-11 processor card and up to two megabytes of memory can be plugged into the chassis, along with the 18-bit and 22-bit bus controllers.

'Million robots by 1992'

by Kevan Pearson

SALES of robots in the US could more than double over the next two years, and increase by a factor of 10 by 1992, according to a report by US based research agency International Research Development*.

IRD predicts that robot sales in the US will be $315 million in 1982, giving an installed base of 11,300 units. By 1984, sales will reach almost $640 million.

Ten years on, in 1992, IRD predicts sales of over $4 billion, at constant 1982 values, with almost one million robots installed.

The US manufacturing industry is taking to robots on an increasing scale, says IRD president Kenneth Bosomworth. He cites worries about international competitiveness, especially with Japan, as the major reason for this.

*The Robot Explosion, IRD, 30 High Street, Norwalk, CT 06851, US. 151pp.

FERGUSON . . . A network designed for growth without over-capacity.

Blue Circle get digital network plan going

by Donald Kennett

CONSTRUCTION of one of the biggest private digital networks in the UK is to get under way later this year when Blue Circle Industries installs the first of £3 million worth of exchange equipment.

The network will link 70 sites from Inverness to Exeter through seven communications nodes and, in a later phase, will support direct links from terminals and computers run by the 80 largest of its 4,000 customers. It will use analogue links initially, handling speech and data separately, and will convert to digital links when they become economically justifiable rather than as soon as they are available.

Decisions are to be made this summer on the £2-£3 million worth of minicomputers that will support distributed applications such as order collection and stock control via up to 14 of the bigger sites.

Ultimately the aim is to integrate all kinds of traffic including speech, data, facsimile, telex and teletex on to the one digital network. But even handling them separately, the new network is expected to save £750,000 a year from 1984 on a telecommunications bill of £2 million a year.

Switching equipment includes GEC Reliance SL-1 and British Telecom Monarch and Herald PABXs and Case telex message switches. Transmission links include 60-channel circuits between the three main nodes in the network, which provide alternative routeing facilities to cope with line failures. The remaining sites are linked by 12-channel circuits divided equally between speech and data.

Contenders for the distributed mini requirement are the IBM 8100, ICL ME29 and Honeywell DPS-6. Trials run with 8100s found them "extremely good in a number of applications," according to management services chief Doug Ferguson. "But the ME29 and DPS-6 were also very acceptable," he says.

The most likely candidates to handle the data switching are IBM's 3705 communications controller and the 3805 and 3809 plug-compatible equivalents from ITT. The network architecture will be IBM's SNA, Ferguson says, but the company wants to avoid being restricted to IBM equipment.

Equipment evaluation team leader Simon Parey adds: "ITT gives you X25 and HDLC as well as SNA. It doesn't force you to go any particular route."

The company is concerned to standardise as far as possible without restricting its future options. It is also concerned to buy packages that will need the minimum amount of additional effort to make them do the required job. For that reason it has rejected the smaller data switches on the market, such as the Gandalf PACX.

For the same reason the company has rejected the idea of trying to implement an open network scheme, although that is the ultimate aim. "Ideally we would have an X25 network, but who has the architecture to do it?" he says. "We don't want to do any pioneering. We want packages, and until open network packages are on offer we will use SNA and 3270 emulation."

New name in UK mini market

by Kevan Pearson

A NEW name in minicomputers has entered the UK with TKT Computer Services becoming the sole UK distributor for Point 4 minis and systems.

The Point 4 range, manufactured in the US, comprises three minicomputers which strongly resemble Data General's 16-bit Nova and Eclipse machines. The design was originally based on Data General's Nova architecture, but as the machines have developed they have moved apart. It is still possible to run Point 4's Iris operating system on Data General's Nova computers and conversion tools are available to run Data General software on Point 4 computers though they are not directly compatible.

TKT will not market the machines to end users, but will supply them on an OEM basis to the dealership network it is currently establishing. No end user price is available for the top line Mark 8 machine, but a typical end user price on the middle range Mark 5 would be about £28,000 for a fully configured system including 128 Kbytes of memory, eight terminals, and Iris.

France puts £35m on computerised betting with 11,000 terminals

by Jack Gee

AN order worth 350 million francs (£35 million) has been placed by France's State-owned tote organisation, Pari-Mutuel, with Matra and Peripheriques et Materiels de Controle, for a computerised betting system to be installed at 6,000 outlets covering the entire country.

The two companies will supply 11,000 interactive terminals and 6,000 concentrators over the next five years in a programme which is designed to boost receipts from one of the French Exchequer's most profitable sources of revenue.

Pierre Carrus, director of Pari-Mutuel, said: "The cost of sorting betting slips by hand is increasing so fast that we keep having to put up the level of the minimum stake. This is discouraging bettors from putting their money on the horses.

"But operating costs with a computerised system will be almost the same whether 1,000 or 10,000 betting slips are handled. They will also be dealt with in real time."

The computerised tote will begin operating at Mantes-la-Jolie, near Paris, next year and will then be extended to cover all of France by 1986. In the first stage of the programme, punters will continue to fill in betting cards which will then be keyed in by operators.

These operators will work at tobacconists' shops which traditionally act as intermediary between punters and the Pari-Mutuel.

As the general public become familiar with the terminals, they will begin to operate them.

The terminal screens will show the number of horses selected, the type of bet and price. They will also display winnings due for winning tickets from the previous meeting.

Doctors give go-ahead to Microwriter for disabled

by Boris Sedacca

THE British Medical Association has given its stamp of approval to Microwriter, a hand-held word processor for use by disabled people.

The Microwriter, which costs £485, has been extended and developed to help disabled people whose handicaps prevent them from communicating or writing without hindrance.

The machine has been on the market for several years in what is euphemistically described as "pilot marketing", says Microwriter managing director Mike Davies. But it has now been formally launched with a view to producing 7,500 units in the initial run.

Text is input by means of a keyboard containing six keys. Characters are keyed in by depressing the appropriate key combinations with the right hand. The thumb is used on two keys to switch between alphanumeric and control modes.

The equivalent of five A4 pages of typed copy may be stored in the Microwriter's 8 Kbytes of memory, and this may be dumped on to cassette tape. Text may be reviewed and edited by connection to a video monitor or domestic television set.

Now the Microwriter company has set up a charitable offshoot, called the Foundation for Communication for the Disabled, which will provide adapted Microwriters at £100 below the commercial price and adaptations including voice-synthesis at non-commercial prices.

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MICRO NEWS — by Robert Parry

BLANDFORD . . . . "Commercial leverage".

MPSL for Sharp

MICROSOFTWARE house MPSL has added the Sharp PC-3201 business micro to the range of hardware running its BOS/5 MicroCobol software. Over 40 8-bit and 16-bit minis and microcomputers can now run MPSL application software.

For Sharp the deal moves it well into the software business with proven business application and vertical industry packages.

The deal is with Sharp itself, but MPSL has access to some 30 dealers. "It's always nice to do business quite high up the distribution chain," says MPSL sales director David Blandford. "It gives us more commercial leverage."

NatSemi joins advanced microprocessor race

A LATE entrant has joined the advanced microprocessor race. After years of development – and delayed launchings – National Semiconductor's NS16000 is on general release, with distribution promised for July.

The family of processors is based on a 32-bit internal architecture and will include devices with eight, 16 and 32-bit external data buses. The first to appear will be the 16032, an external 16 bit chip, and the 16008, an 8-bit external chip. NatSemi has silicon for these now, says product manager Col Rada, and samples have been with major US and European customers since last November.

The next microprocessor to appear will be the 16016, a bi-lingual version of the 16032 which also executes 8080 object code. It will be followed by the 32-bit device and CMOS versions. The new family eventually will have seven CPUs backed up by a variety of peripheral chips.

The first peripheral device will be the 16082 memory management unit to handle the virtual memory capability, which will be implemented from the start.

Major customers will have it by May, and a floating point unit (16081) and interrupt controller (16201) by September. Off-the-shelf delivery is expected by the third or fourth quarter, says Rada.

Future peripheral chips will be developed by NS16000 second sources as well as by NatSemi. There are three so far – Fairchild, Synertek and Eurotechnique – and the three will produce all of the chip family. Like Motorola's recently reinforced links with alternate sources for its 68000 microprocessor family, NatSemi's ties with its second sources are more of a partnership, a "true technology transfer" according to Rada.

More important than the hardware – and certainly more relevant than the actual width of the external data bus – is the software support for the family, Rada says. All the CPUs will be fully software compatible and a number of third party software deals have been made. Companies involved include Digital Research, which developed the CP/M micro operating system, and Whitesmiths, developers of Unix-like operating system Idris.

The software deals bring in a variety of tools for system builders to develop applications on the 16000, with two or three operating systems and some ten compilers, says Rada. The family is supported on NatSemi's microprocessor development system, Starplex, and in-circuit emulation is available.

In joining this particular chip race, NatSemi sees itself up against Motorola with the 68000. "I don't think Intel will be the main competition", says Rada, despite the 8086's good lead in volume terms, "The real battle will be between NatSemi and Motorola."

It is a battle worth fighting. NatSemi estimates a world market worth $750 million by 1985 for 16/32-bit chips and associated software, and is confident its 16000 series will take about 21% of this.

ASHBURNER . . . . Aiming at the small to medium-sized company.

Two companies React to the mini market

A COMPUTER systems house and a consulting group have joined forces to take on minicomputer systems with a multi-user microcomputer-based estimating and control system.

The system, called React, is made up of software from Solihull-based P-E Consulting Group and hardware from CPS Data Systems of Birmingham.

CPS introduced its US manufactured hardware into the UK at the end of last year. A four-terminal system with 10 megabytes of hard disc and graphics printer to run the React software under the Oasis operating system costs just under £20,000. The package includes two weeks' consultancy to fit the system to the user's needs.

The React package enables users to assemble quotation summary listings, get component routeing information, estimate for material and labour costs, and generate progress and cost reports.

"It is designed for use by the small to medium sized company," says CPS commercial manager Nick Ashburner, "and we are offering a more sophisticated package in terms of hardware and proven software than many of the mini-based products currently on offer."

Laser aimed at low end of range

SURREY-BASED mini system supplier Semaphore Computer Systems, of Godalming, has followed the trend of the big mini makers by releasing a microcomputer to attack the bottom end of its market.

Semaphore is importing US-built boards and assembling them to sell on as the Laser, a microcomputer designed for operation as a standalone unit or as part of a multi-user network. Laser uses either a Z80 8-bit processor or an 8086 16-bit chip, and comes with up to 256K of RAM. Winchester hard discs or Phoenix cartridge drives provide mass storage. The system is upgradeable from the 8-bit version to the 16-bit.

There is a range of UK application software to run under CP/M, MP/M or Oasis operating systems. Semaphore's managing director, Brian Young, favours Oasis, and sees it giving "solid multi-user handling capabilities" for the type of market he is aiming at.

"We are going for the lower end mini level application market," he says. "We already have a 16-bit mini – the Vanguard 7500 based on the Sperry range – which are fairly hefty minis."

The Laser machines can cope with eight users on the Z80-based unit, or 32 users with the 8086.

64K chip makes a comeback

US semiconductor manufacturers have started a comeback in 64K dynamic RAMs, with "second generation" chips technically more advanced than those from the Japanese companies.

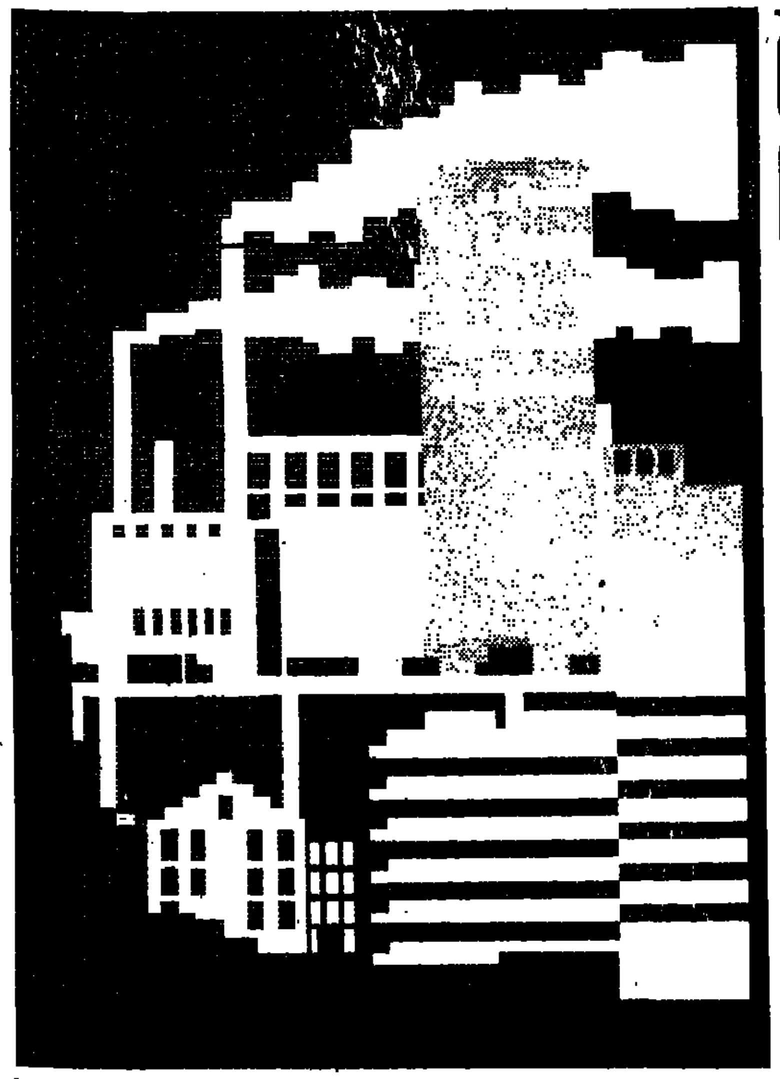
Intel, which put a 64K chip on the market then withdrew because of production problems, has re-announced its entry, with full-scale production promised by the end of the summer.

The chip, named 2164A, uses Intel's latest fabrication technology HMOS-III, to give 150 and 200 nanosecond devices. Redundant memory cells are incorporated to give improved yields.

Other US chip makers coming on to the 64K scene are Mostek, Fairchild and National Semiconductor, all of which expect to gain a significant share of the market still dominated by the Japanese five: Fujitsu, Hitachi, Mitsubishi, NEC and Oki.

Dealer appointed

KINGSTON-BASED microcomputer supplier Computron has been appointed a dealer for the ACT Sirius I. It will offer a consultancy service as well as providing operator training and service facilities for the machine.



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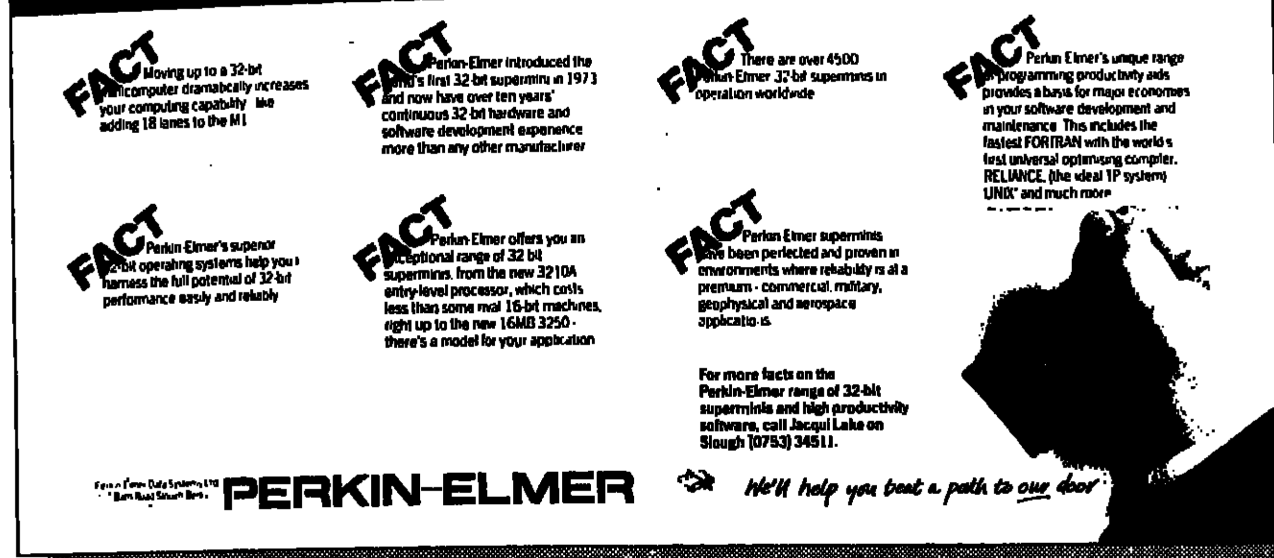

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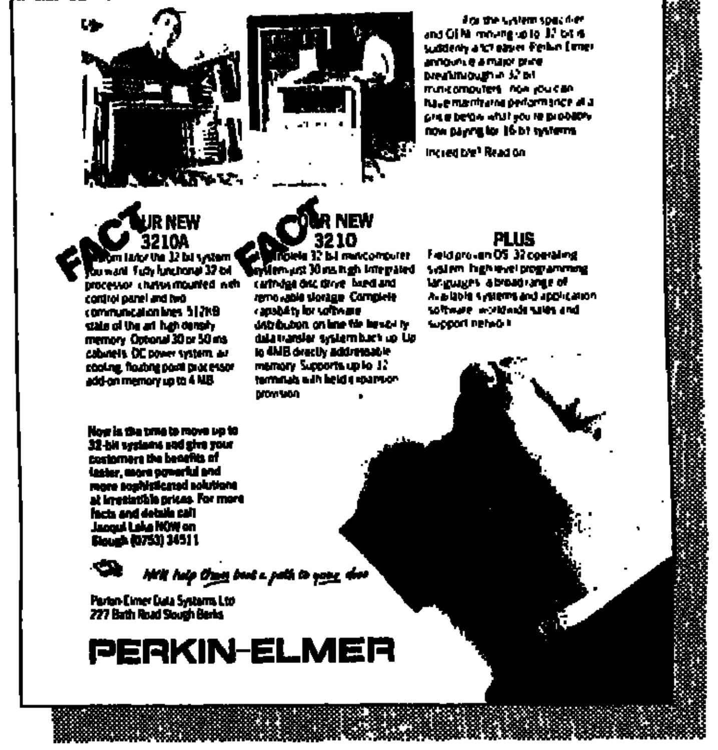

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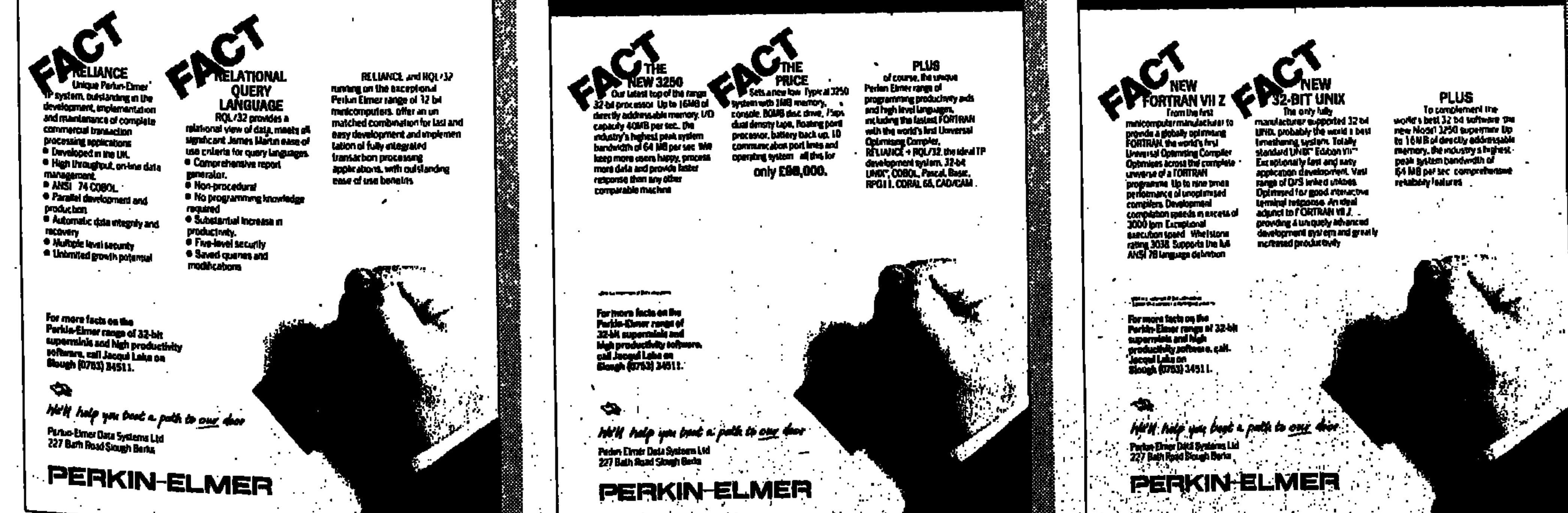

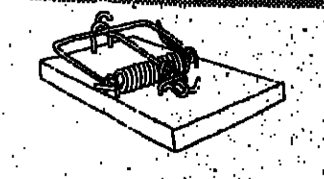

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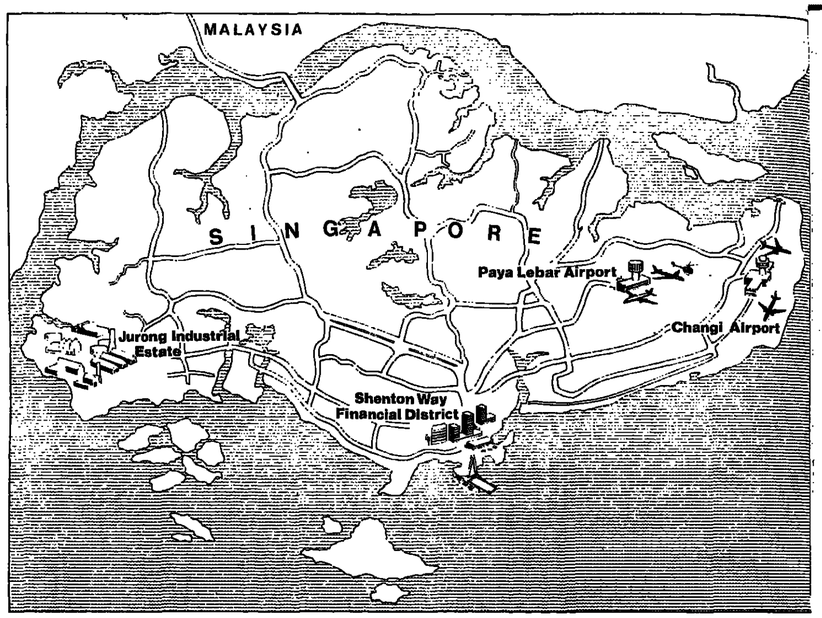
Singapore bids to rival Japan as computer Mecca of East

A government-led computerisation effort is now in full swing in Singapore (writes a Special Correspondent). The national drive to computerise covers all areas of economic activity, including the launch of a multi-million dollar computerisation programme in the Civil Service. The success of this so-called second industrialisation aims to put Singapore on the same level as Japan by 1990, and represents major opportunities for foreign computer companies.



THE highly successful industrialisation of Singapore in the last two decades is largely due to the effectiveness of the Economic Development Board, established to attract foreign investment. Now an equally omnipotent National Computer Board (NCB) has been set up to promote and assist in the establishment, development and expansion of the computer services industry.

As its first major task, the NCB has been entrusted with a £25 million Civil Service computerisation programme over the next three years. The latter touches anything from formulating economic policies to the licensing of pets in the city-state.

Its activities encompass the 10 major government ministries: Finance (income tax processing), Trade and Industry (economic modelling), Labour (manpower forecasting), Health (online access to patients' files), Home Affairs (24-hour computer-aided response to police and emergency services), National Development (land use analysis), Communication, Environment, Education and Social Affairs.

A major objective is to provide a more productive and cost-effective service by cutting down on manpower. In contrast to most Western bureaucracy, the Civil Service in Singapore has been able to shed staff while expanding on services over the past three years.

Another major consideration is to provide a base and an impetus for the expansion of the local computer industry and form an integral part of the overall national strategy to develop Singapore into Far East's foremost computer centre.

The estimated hardware requirement includes 13 mainframe and seven minicomputers, with 683 visual display units and 208 character printers. The majority of the application areas are online, interactive systems using decentralised hardware.

The NCB will act as the sole buyer and seek out bulk purchase to reap the benefits of economies of scale. Presently the local software industry is characterised by many small firms, and the sheer size of the contract will compel them to pool their limited resources to qualify for tender.

However, the bulk of the order will still be handled by the major foreign computer manufacturers. This injection of foreign expertise will help Singapore to leapfrog to the high end of information system technology.

Apple Computer has chosen Singapore to set up its first overseas manufacturing subsidiary. Reflecting the parent company's confidence in the local availability of components, skilled labour and good operating environment, it plans to increase its initial investment of £5 million to £12.5 million. Presently it is producing 75% of the worldwide requirement of the printed circuit board (PCB) for the $700 Apple II computer.

Hard on its heels, Japan's second largest and fastest growing microcomputer company, Sord, has opened its second overseas plant in Singapore. Out of its initial investment of £4 million, 30% is earmarked for R&D facilities, and represents the first substantial R&D project to be undertaken by a Japanese company in Singapore.

The main carrot for Sord has been the generous 10-year tax-free holidays offered. For a start, the lowest class of business microcomputers, the £1,500 M23-III with a memory of 128K will be produced. Later other models sold under the brandname of Orange will be introduced.

Since its formation in 1970, Sord has achieved an annual growth rate exceeding 100% in sales and last year the figure was £25 million, 80% of which was made in recession-hit Europe!

The government has not been slow in having a finger in the pie. A recent £2.5 million joint venture called Tata-Elxsi, between Elxsi (20%), Tata (55%) and the Singapore government (25%) will soon be producing one of the world's fastest multiprocessor computers in Singapore. Elxsi California (set up by ex-IBM engineers) will provide the hardware technology, while Tata Group (India's largest computer user) will supply technical and managerial personnel to run the manufacturing plant.

The new £500,000 computer can utilise up to eight central processing units working simultaneously with a speed of 20 million instructions per second and a main memory of 192 Mbytes. This is six times faster than the largest IBM mainframe computer and with a larger capacity.

With at least two CPUs working simultaneously – should one stop operating, another takes over – this feature makes it especially suitable for organisations requiring computers to operate round the clock. All features considered, the performance ratio of the multiple CPU Tata-Elxsi computer is expected to be superior to any in the world. Prototypes are currently being tested in California.

> **'Singapore will be the only place in Asia outside Japan to have the capability to produce silicon wafers.'**

The heavy investment and high technology required in computer manufacture mean that few local companies are able to venture into it. However, Otrona Singapore, a £750,000 investment of the local Dove-Chem Group, has become the first fully Singaporean-owned company to manufacture a portable microcomputer called Attache. But initially it will assemble only key modules such as the main PCB, power supply, keyboard and cathode ray display. The computer sells for $4,500 in the US.

Two other computer manufacturers with a base in Singapore are Digital Equipment and Far East Computers, a subsidiary of India's Hindustan Computers. The latter assembles a £7,500 word processor called Abacus Secretary.

Other manufacturers of peripheral equipment include Data Recording Heads Co (UK), and Acron (US).

In anticipation of the computer boom, several multinational subsidiaries in the electronics industry have chosen Singapore as a site to assemble and test large scale integrated circuits including 64K dynamic RAMs.

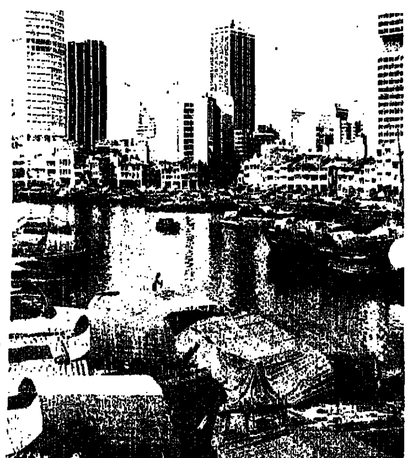
Siemens of West Germany has started production pegged at 20,000 for its own consumption while National Semiconductor plans to manufacture about 200,000 units a month for the world market.

The prize of the lot is the £15 million wafer fabrication plant to be built by the Italian electronics giant SGS-Ates. When it comes on stream in 1983, Singapore would be the only place in Asia (outside Japan) to have the capability to produce silicon wafers.

A common aspect of computerisation of industry on the island is the computerised stock control systems which have been introduced in many firms. A new and more sophisticated area is Computer-Aided Design and Manufacture. Philips Singapore has installed a CAD system from the US Computer Vision Corp at its audio factory and plans to bring in more original design work from Europe. The latter also plans to start a time sharing CAD system for small companies on a bureau basis in South-east Asia to be based in Singapore. The system is suitable for mechanical drafting, PCB layout and IC design, structural design and plant layout.

Many experts believe that Singapore's intense and well organised attempt to computerise will help her to achieve her industrial and financial government. With a stable and efficient government as business sector, lower cost worldwide communication and extended and varied international banking system Singapore could outdo Hong Kong as the "Zurich of the Far East" – and many Asian financial centre dealing in Asian dollar market, loan syndication and management.

Upgraded and computerised manufacturing and service sectors will see Singapore confidently through the 1980s with an average comfortable 10% real annual growth rate.



SINGAPORE . . . Three-year computerisation programme.

9,000 DP people needed by 1990

RAPID expansion of the computer services industry in Singapore has created a severe shortage of computer personnel, estimated at 1,000. The result: rampant job-hopping and a spiralling wage scale for the industry.

Recent estimates indicate that if the present trend goes unchecked, there may be a shortfall of up to 9,000 by 1990.

To make matters worse, presently 35% of the 1,000 data processing staff in Singapore are attached to either the Ministry of Defence System and Computer Organisation, the National Computer Board or the government's own software house, Singapore Computer System.

As a short term measure, the government has recruited 300 Asian graduates from the UK, Australia and New Zealand. It also offers computer science annual scholarships at some of the top universities in the West worth up to £9,000: Cambridge, London and Manchester (UK), Harvard, Yale, Cornell and UCLA (US); and Alberta, McGill and Waterloo (Canada).

The National University of Singapore has expanded its computer science department to cater for the enlarged student intake.

The government has also carried out a three-pronged attack to tackle the long-term shortage. From the Sixties joint technical training schemes with the various multinational corporations – Philips, Rollei (now in liquidation), and Tata – the government has graduated to form joint venture training institutes with foreign governments. This provides greater resources and access to higher forms of expertise that are normally beyond the scope of a company.

The Japan-Singapore Institute of Software Technology (JSIST) is a joint venture project to train up professionals to form the future core of software manpower.

On the hardware side, in collaboration with the French government, the government has set up the French-Singapore Institute of Electro-Technology (FSIET) to produce skilled electronics technicians. Even the mechanical and production side of computers is given a boost through the German-Singapore Institute of Production Technology (GSIPT). Based on the German system of technical training, this teaching factory will introduce more advanced expertise.

Other attempts to bring a greater awareness of computers take place at community centres, some companies and government departments. Apple, for instance, loaned computers for staff to use at home.

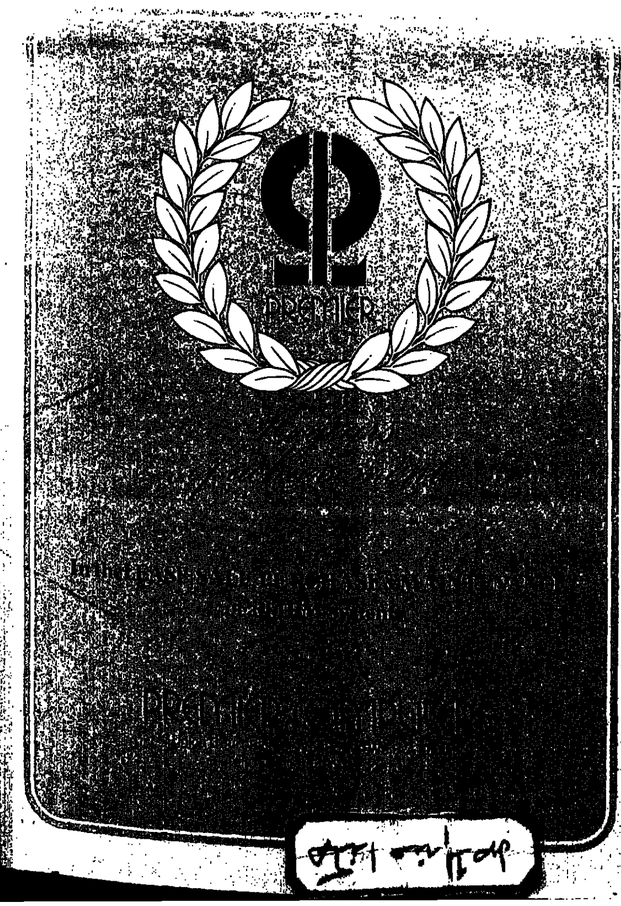
On a less generous level, top civil servants are given 5% low interest loans of up to £1,500 to buy computers for use at home.

But the greatest impact will be felt at the school level, when by the end of 1982 the target of four computer science teachers and three microcomputers in each of the 171 secondary schools should have been achieved.

Singapore's trade unions have been renowned for their "responsibility". There were only two strikes in 1976, none in 1978 and 1979, and only one in 1980. Even the two industrial arbitration courts was closed down for lack of business.

On the issue of computerisation and the possibility of job losses the unions have, unlike their Western counterparts, adopted the attitude of "If you can't beat them, join them". The National Trade Unions Congress (equivalent of the TUC) has set up small local computer training classes close to workers' homes to acquaint them with computers. This is to prepare them for anticipated widespread use of computers in the manufacturing and service sectors.

In full employment unions have little difficulty in convincing workers to accept the computer simply as a useful tool rather than a threat to their livelihood.



SOFTWARE BRIEF

UCL sets up software division

SYTEMS house Universal Computers Limited (UCL) has formed a software division to market its library of application packages for the Pick operating system, running on UCL's Ultimate range of minicomputers.

The software division is to co-ordinate the marketing of packages developed by specialist software houses and provide support for Pick and its utilities, such as the Recall report generator.

Sales profile

MARKETING services division of Dun & Bradstreet has launched Dun's Executive File, a confidential marketing statistics programme service for clients. By matching clients' information on their customers to the D&B database of industrial information on 200,000 active UK companies, a profile of potential and actual purchasers can be built up for use in devising sales strategies.

Digital deal

UNDER a co-operative marketing agreement, Digital Equipment Corp (DEC) is to distribute Micro Focus system software products through its ORMs and direct sales force. Among products to be offered for the Professional 325 and 350 16-bit microcomputers are MicroFocus' Level II Cobol, and interactive programming tools Animator, Slideshow and Forms-2.

SOFTWARE FILE

by Maggie McLening

'Grown-up' market calls for sharper, higher calibre salesmanship

TRUEMAN . . . "Salesmen have to be higher calibre."

THE software market has grown up, and sales techniques must become more subtle and sophisticated to penetrate it. This was the message from Ken Trueman, director of RTZ Computer Services of Bristol, at a presentation to members of the Computing Services Association at a seminar last week on profitable software selling.

"Products have to be better because the market is now more sophisticated, and salesmen have to be higher calibre, as well as sharper and more professional," he said. While Trueman's comments were addressed to those who sell software, purchasers of software would do well to be aware of the techniques used upon them.

Outlining each step of the sales cycle, he emphasised that selling a product such as high value financial software, which has a sale lead time of up to six months, the salesman must constantly evaluate the likelihood of his success, to avoid wasting time and money.

Correct identification of the parties involved on the purchaser's side, particularly of the ultimate decision-maker he considered essential for application of pressure to close the sale.

Trueman emphasised that the salesman must restrain himself from telling the client everything about the product too early in the sales cycle, otherwise he would lose the opportunity to keep in touch and the means of finding out how the opposition was doing.

He proposed that bridges for communication should be established between the vendor's and purchaser's companies, to ensure that sources of information were tapped at the highest and lowest levels, to provide maximum feedback for the salesman.

"Show the client the computer room," he suggested. "Although computers look pretty boring, they represent an awful lot of money."

The same principle should also be applied to the customer's particular areas of interest: if he was concerned about future developments, he should be shown the development team busily coding, even if the product was not due to be launched for 18 months.

"Don't give user visits until a short-list has been drawn up, because the prospective client won't know what questions to ask and a constant flow of uninformed visitors may spoil the user base", he advised.

Closing the deal, which was rarely the job of the salesman, as it was a waste of his time when contractual details were normally decided by management, was the time for pressure on the potential user.

Among the "carrot" incentives that could be used were special functions such as user group meetings or product-related seminars, but Trueman favoured "stick" incentives with penalties for not signing now, such as an impending price rise, extended deliveries or heavily-booked training courses.

On the subject of salesmen themselves, Trueman said he expected over £400,000 worth of business to be brought in by each of his general ledger salesmen per year, although Elwyn Wareham, production manager of Systems Designers Ltd put the figure at between £30-40,000.

Wareham, speaking on sales organisation, said that a good rule of thumb was that the salesman should generate a minimum of three times his cost to keep in profit.

He also emphasised the need for constant feedback of information, and outlined the precarious nature of the software product sales manager's job.

"Software products are unlike almost any other product being sold in that their design costs are very high while their reproduction costs are negligible", explained Wareham. "The effect of this is that extra sales go almost directly on to the bottom line: unfortunately the converse is also true, that shortage of sales means an equivalent shortage of profit".

Colin Bonfield, sales manager of Logica, examined terms and pricing policies relative to the licensing or leasing arrangement. He estimated that the proportion of costs expended on the sales and marketing operation could be as high as 40% in a typical company.

Cost reporting

AIMING at engineering managers and cost accountants involved in government contracts, ADP Network Services has launched a cost reporting system for project managers. Called Costrak, it produces a wide range of reports including work breakdown structures, showing the project's schedule and cost variances, manpower loading, and a summary of cost/schedule status.

Fast access

CROYDON-based software house Spider Software has launched a database management package for the Apple II microcomputer which, it claims, offers a retrieval time of three seconds on a primary index search. Called Access, the system requires an Apple II system with 48K of memory and two disc drives, and costs £199.95 including VAT.

Package aimed at exporters

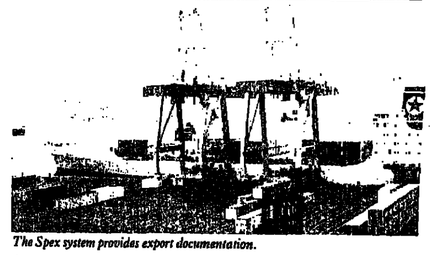
A MICRO system aimed at an estimated 20,000 active UK exporters will be available at the end of June from the Simplification of International Trade Procedures Board (SITPRO).

Funded by the government, SITPRO was set up to establish common standards of export documentation for international trade, and to supply information for the design and implementation of application packages relating to export. Its launch of a micro-based export consignment processing and invoicing system fills a gap at the lower cost end of the market, where demand is increasing.

Called Spex, the package caters for "ro-ro" (roll-on, roll-off ferry), deep sea, air and postal shipments, and can be used by almost any company or industry. It is menu-driven to aid the first-time user, and data may be extracted from disc files holding information on consignees, freight forwarders, products or declarations, to save keying-in time.

Information is held on a consignment record, from which documents for invoicing, surface and air transport, parcel post and Customs clearance can be generated. The data can be output to disc for reformatting.

Written in CIS Cobol, Spex runs on any microcomputer supporting the CP/M or CP/M 86 operating systems, and any others with CIS Cobol compilers. It costs between £250 and £300 to end users.



The Spex system provides export documentation.

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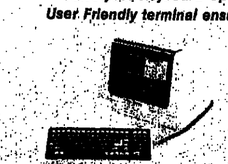

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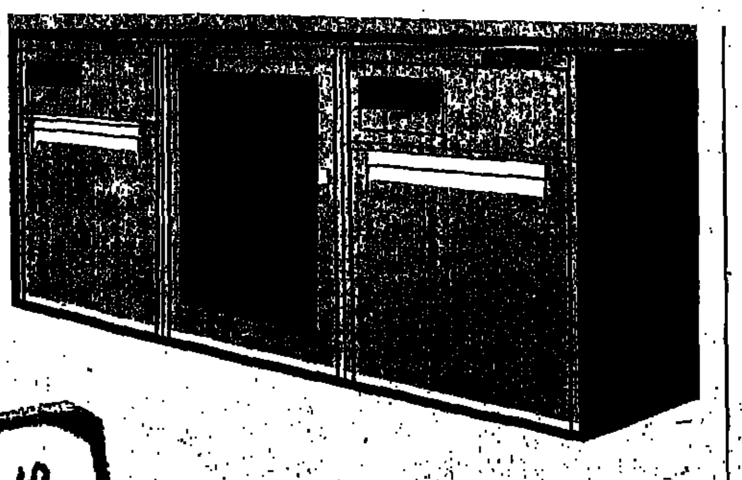

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COMPANY NEWS

by Kevin Cahill

Zygal is still dynamic

DESPITE City nervousness over some of the recent launches on the Stock Exchange's Unlisted Securities Market, Zygal Dynamics has produced a 27% rise in profits for the year ended March 1982. Turnover at Bicester-based Zygal rose 42% to £2.84 million.

According to Zygal director John Maclean, the company has invested heavily during the year in plant and inventories to support new distributorships with Digital Equipment and Fujitsu.

Despite this increased expenditure Zygal added £68,000 to last year's £252,000 to produce a final profit of £320,000 for 1981/2. This makes the company one of the better performers on the USM.

Maclean says that the full effect of the DEC and Fujitsu deals has not yet been felt by the company,

Commenting on reaction to a slip in the half-year figures from the 1980/81 level of £163,000 to £116,000, Maclean said that the first half of last year had been exceptionally good and this year's first half exhibited the effects of the build-up of stock and staff for the additional distributorships.

Zygal's main business is still with its original Diablo distributorship, but the widening of the product range with the inclusion of DEC and Fujitsu is seen as a move to strengthen the company by diversification.

When the company floated its shares on the Unlisted Securities Market last year there was some criticism in financial circles about the "thinness" of its trading base and its dependence on the Diablo distributorship.

Despite the very good results the shares have moved very little, and are still hovering just below last year's placing price of 78p, reflecting continued investor caution until the new products are seen to produce results.

Japan's big companies to benefit from fifth generation

INVESTMENT planning and production in Japan are done on a long-term basis. And all the long-term planning hinges on the Fifth Generation project.

In a report on the Japanese computer industry, part of which was reviewed in these pages last week, Alex Stewart, a consultant with stockbrokers Henderson Crosthwaite, quotes an American company president.

"The companies that do a good job and perform well are going to prosper over the long term, not the short term. Many companies make trade-offs in the short run versus the long run, and this is not something that comes easily, I know, but I want to encourage you to look at the long term because that's where the real money is."

The idea that short-term profit-seeking is self-defeating is hardly revolutionary, but it is vital to Stewart's context. His report is intended primarily as a guide to investors and financiers, many of whom, especially in the UK, have become mesmerised by the lightning success of American companies like Apple and Osborne.

Stewart says Japan's Fifth Generation Project is creating the commercial and technical environment in which the Japanese computer industry will work for the next five to ten years.

The Japanese company best poised to benefit from the changes which the implementation of the Fifth Generation will bring is NEC (Nippon Electric Company), says Stewart.

This may come as a surprise to those who are familiar with the view that Fujitsu is the technological leader. But Stewart says that NEC has provided the prototype strategy for all the other companies he reviews, including Fujitsu.

NEC was the first to understand the importance of a stable supply of proprietary integrated circuits and the mating instinct of the digital signal. As a result it has been able to achieve leadership in both semiconductors and office automation equipment, he says.

The company is by far the biggest microcomputer supplier in Japan, with some 28% of the total market for small business systems. Stewart says that NEC maintains an extremely aggressive investment programme, which pays scant attention to the return on the bottom line.

Stewart identifies Fujitsu as the second most likely company to benefit from the Fifth Generation plan. But Fujitsu has been slower than arch-rival NEC to integrate and market integrated office systems, he says.

Fujitsu is a smaller company in every activity but mainframes, and, Stewart observes, has sought extra leverage from a series of OEM deals based on IBM compatible hardware (including a very important deal with ICL).

Taking on IBM is the calculated risk to which the company has exposed itself, playing on its advanced chip designs.

Its other strength is marketing, which shows particularly in small systems and personal computers.

Stewart says that Fujitsu is particularly conscious of market forces, witness its ambitious deals with Amdahl, Siemens and ICL, in addition to its joint ventures with TRW in the States and Matsushita at home in the small systems field.

But the emphasis in most of the deals on selling larger machines leaves Fujitsu behind companies like NEC, Melco (Mitsubishi) and Toshiba in small business systems.

Stewart says Fujitsu should remedy this deficiency when its office automation factory is in production next year.

Not surprisingly, Stewart's third choice to reap top rewards from the Fifth Generation is Hitachi. This company is one of the leaders in the race to develop a supercomputer based on fourth generation architecture, he says.

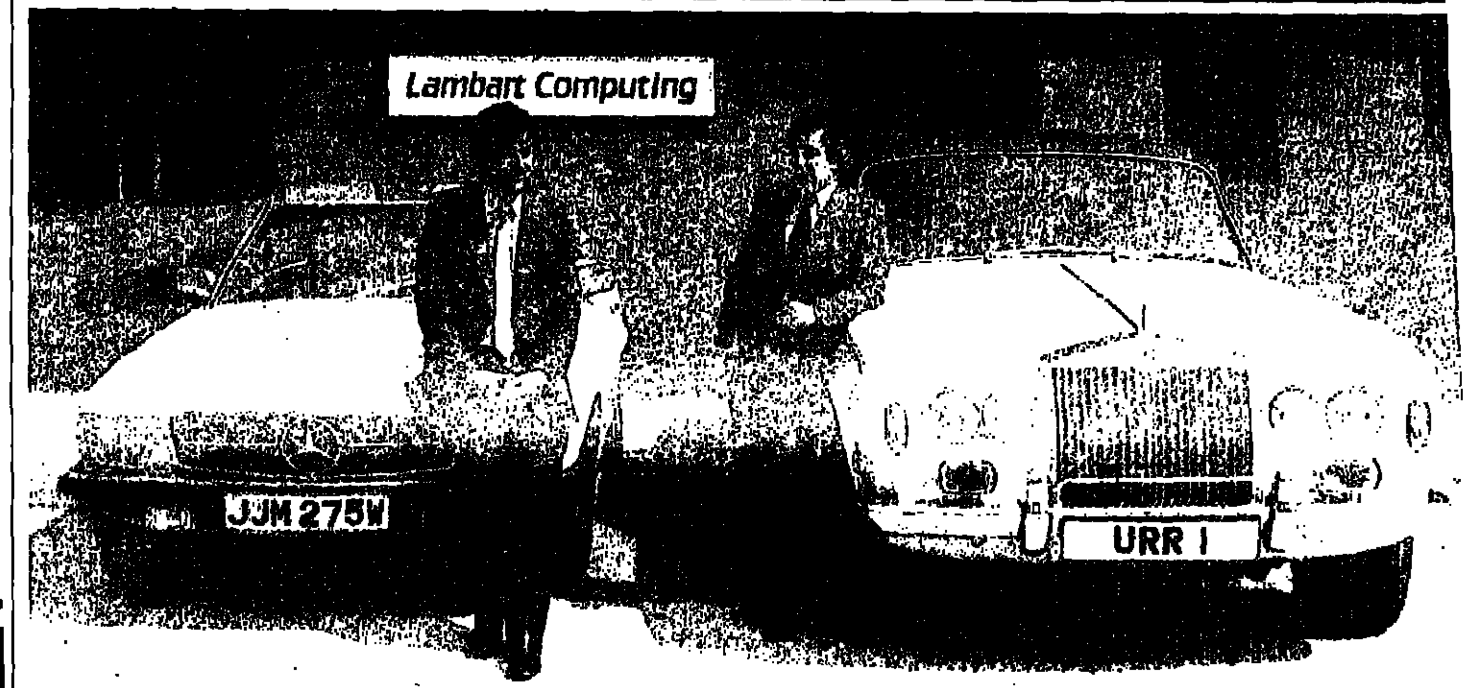
Looking at Hitachi's long-term strategy, Stewart says that more than its other Japanese rivals, Hitachi has sought to take market share from IBM by duplication and replacement. The vulnerability of this strategy was exposed when its former OEM customer in the US, Itel, went under in the wake of IBM's 4300 model launch.

According to Stewart, the emphasis on pursuing IBM has brought benefits in the shape of highly advanced hardware.

Hitachi clearly wishes to establish a better balance between its semiconductor based mainframe business and the new markets opening up for small business systems and microprocessor applications, Stewart says.

He summarises his view of Hitachi with the charming observation that the company chews steadily away at IBM's market, while developments elsewhere are threatening to "make such behavioural instincts extinct".

Hitachi chews steadily away at IBM's market.



ONE way to advertise your success is to buy a Rolls Royce, as Gordon Lamond and Clive Bartram of Lambart Computing have done.

Their company, a systems house specialising in turnkey projects, which was set up in a back bedroom three years ago, reached £5 million turnover this year. They have opened offices in Los Angeles and New York, and have extensive marketing and sales in the Middle East.

But success did not come easily. Lamond says that even three years ago, some computer suppliers would prefer to lose business rather than sell equipment to system houses who were, like Lambart, supplying "foreign" peripherals and software.

Lambart had to put in some very late nights and produce very sophisticated software before the mainframe suppliers took it seriously. But it won through.

To assist other would-be entrepreneurs in setting out on the same trail as Lamond and Bartram, and to help make initial financing easier, Computer Weekly and Barclays Bank are running a special conference on June 17 at the Royal Garden Hotel in Kensington, London.

Called First Time Financing, the conference is aimed at those raising money for the first time or in the early days of running their own company. Further details from Sue Bonnell, IPC Conferences, Surrey House, Throwley Way, Sutton, Surrey. Tel: 01-661 8040.

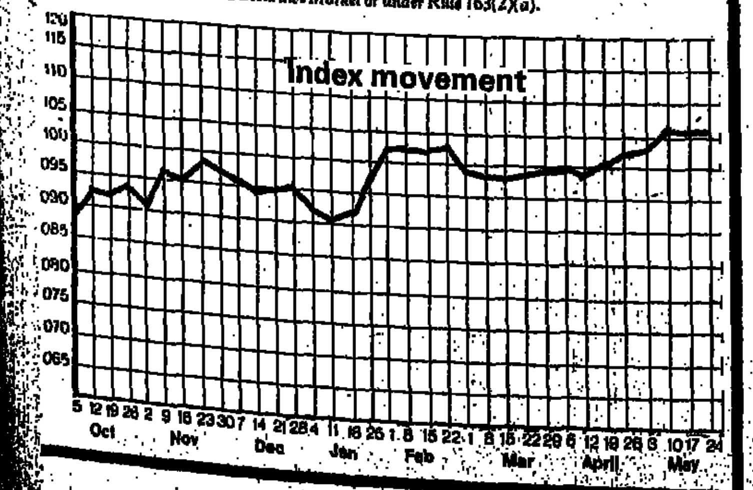
CW SHARES TABLE

Date 25.5.82 Index 106.76 Change +0.48

Pence 1982 High	Pence 1982 Low	London Stock Exchange Stock	Pence Price	Pence C'nge	$ 1982 High	$ 1982 Low	US Stock	$ Price	$ C'nge
193	151	ACT (App Com) (25p)	193	+5	29½	19¾	Amdahl	21¾	¼
174	150	BOC Int. (25p)	167	+2	20¾	14¼	Apple Inc	14½	
27	18	B. Bov Kent (25p)	27	+½	28	23¼	Auto Data Pro	28¼	
177	101	Chubb (20p)	127	+7	37¼	31	Burroughs	35½	½
86	49	Cole Group (25p)	66	–	13¼	8¾	Comp Auto	8¾	
265	231	C.A.S.E. (20p)	265	+5	18	11¾	Comp Sciences	12	
730	577	De La Rue (25p)	660	+23	18½	12¼	Comshare	12½	
310	235	Extel (25p)	310	–	35½	26¼	Control Data	28¼	¼
725	625	Ferranti (50p)	725	+20	38¼	24	Cray Research	28¾	– ⅛
993	737	GEC (25p)	898	+25	53¼	28¾	Data General	29¾	⅛
82	31	ICL (25p)	82	+5	49½	13	Datapoint	13¾	½
47	41	Kalamazoo (10p)	41	–1	24½	17¾	Dataproducts	19½	¼
310	223	Kode Int (25p)	297	–	87½	72½	Digital Equip	78	
305	215	Memec (10p)	293	+3	29	18¾	Elec Data Sys	28¼	¼
160	110	Muirhead (25p)	160	+10	8½	3¾	Gen Automation	4¼	⅛
282	218	N'market (1981) (5.06)	282	+8	38¾	28½	Harris	29½	
820	670	Norsk Data	780	–25	46¼	36¾	Hewlett Packard	45¼	+ 1½
355	285	Office & Elect (20p)	365	–	76	63	Honeywell	71¼	1
640	445	Philips Lamp (f10)	522	–10	33¼	20¾	Intel	30½	– ½
433	349	Plessey (50p)	433	+18	68	57	IBM	62¼	– ¾
97	61	Quest Auto (10p)	70	–8	58	42¼	Litton Ind	42¾	½
430	353	Racal Elect (25p)	418	+17	13¼	10	MDS (Mohawk D)	11¼	¼
250	171	Rediffusion (25p)	215	+7	24	18	MSA (Mgmnt Sci)	21¾	– ½
468	415	Thorn-EMI (25p)	428	–2	18¼	10	Mngmnt Assist	13	– 5¼
80	74	UC&T (50p)	74	–2	8¾	6¾	Modular	8	¼
					65	60¾	Motorola	60¾	– ¾
		OTHER MARKETS*			24½	15¾	National Semi	22	+ 1¼
					49½	40½	NCR	48¼	+ ½
90	83	Bus Comp (10p)	83	–	26¾	18	Perkin-Elmer	19¾	– ¼
857	416	Comp Serv (£1)	461½	–	23¾	17¾	Prime	22½	+ ¼
167	78	Consult (C&F) (10p)	150	–	37¼	28¾	Raytheon	34¾	
252	245	In Tech (25p)	245	–	28¾	18¼	Signal	18½	¼
117	117	Miles 33 (10p)	117	–	34	26½	Sperry Comp	26¾	¼
170	122½	NMW (£1)	128	–	34½	24	Storage Tech	24	–
65	43	Rolfe & Nolan (10p)	60	–	28½	23½	Tandem	28¾	–
116	78	ScanData (10p)	116	–	38	28	Tandy	28½	–
210	180	Star Comp (10p)	205	–5	93	70¾	Texas Inst	88¾	+ 2
105	95	Trident Comp (10p)	95	–	27¼	18¼	Tymshare	20	–
95	78	Zygal Dyn (5p)	78	–	38¾	27	Wang Lab B	28¼	– ½
					9½	7½	Wyly	9½	–

The table shows the closing prices in London on Tuesday and in America on Monday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.

**Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*



Tomorrow's printer. Yesterday's price.

There has always been one big problem with the General Electric TermiNet 2000 series matrix printers from Zygal. It's not that they're a new breed of matrix printers, so advanced, so functional that's the problem. Their reliability has never been questioned. It's true that they are very quiet in operation, easy-to-use, easy-to-carry. The sleek clean lines complement all decors. Fewer moving parts. A choice of 60 cps and 150 cps models in either keyboard or receive-only configurations. Each with higher print quality, including descenders and underline.

So, what has been the problem? ... Cost. Considering their performance, the TermiNet 2000 series matrix printers from Zygal have always been excellent value. But, now, they are available at around the same price as other more basic printers. But only from Zygal. And not for long. Send off the coupon.

Please send me: Further details on TermiNet 2000 series ☐ Details of other products from Zygal ☐

NAME

ADDRESS CW6.5

TEL

Zygal Dynamics plc, Zygal House, Telford Road, Bicester, Oxon OX6 0XB Tel. Bicester (08692) 3361 Telex 837907

GILB'S MYTHODOLOGY

Principles of Infotecture—4

State the goals, not your ideas for a solution

Tom Gilb is an independent consultant, lecturer and author on computing topics.

TECHNIQUES are the optional methods, products, ideas and structures which we design into the system exclusively for the purpose of meeting one or more attribute goals.

Sometimes people make use of techniques in order to express their goals. This habit of communication can have the undesirable effect of binding the designer to the technique rather than the real goals which someone intended to express.

This "misuse" of techniques ("I want a computerised system for production planning") rather than the intended goals ("Yes, well what I really want is a faster, more accurate and more integrated production planning system than I have today") is partly due to ignorance.

We may be ignorant of the dangers of binding the people who are going to find us answers ("techniques") to the answers we assume, perhaps wrongly, to be the best ones for us.

We may not be aware of an alternative language in which we can directly express our real needs (like a formal measurable system attribute specification language).

Let me therefore state some corollary principles to the Fourth:

1. If you want the best possible solution, then state your goals, not your idea of how to solve your problem.
2. If you do state your goals in the form of a technique or technical solution, you will probably end up with a solution like that technique; even if it does not solve your problem.

If it does not solve your problem, then you have mainly yourself to blame.

We need to give explicit instructions to our design team, or problem solving team or experts, rather along these lines: "I don't want you people bound to the solution areas which my limited technical competence might accidentally suggest to you. I want the problem solved in the best and most imaginative way possible.

"I don't really care how unusual the solution may seem. I want the solution or solutions (there may be more than one, and we wouldn't want the design team to miss that point either!) that best satisfy the goals I have stated."

There are an incredible amount of combinations of solutions to almost any problem. Our designers need to be free to pull together good sets of them. They need to be free of executive interference in their special area of expertise.

There is an incredible amount of new technology, both hardware and in terms of organisational ideas, which can be applied as solutions to your problem. The rate of change and increase in this solution area is overwhelming.

You, probably don't know the best solution area, if you are the boss, even if you *were* a technical expert in the area a few years ago. And, initially, your own design team most probably do not have a final or a correct idea about the best set of solutions which you can possibly get at this time.

What you want to do therefore is to make sure that they will be free to scout the professional knowledge area in search of good solutions. Don't tie them down; free them to be creative in solving your problems.

Not only "don't tie them down" but make sure that they have the criterion (a well-formulated attribute goal specification) for recognising a really good solution when they bump into it.

And let them know that they can freely suggest "radical" ideas, when these ideas clearly meet your specified result (attribute) goals.

Tom Gilb

HUMAN TOUCH

When all is not what it seems

Cliff Dilloway is an independent consultant specialising in accounting software, taxation and payroll.

A SYSTEM in the context of a program product is an abstract concept. You cannot see a system, but you can see a system working.

Purchasing an abstraction requires a mental agility that salesmen cannot expect their customers to possess, so they resort to a demonstration of the system working. And demonstration of the system working has to be and should be all that those words imply. A demonstration in that it will not be the complete system. Working in the sense that any failure merely indicates that the salesman has not organised things properly.

The corollary is that there are parts of the system that have not been seen working.

The salesman is in charge of a demonstration. He decides what will be demonstrated, where it will take place and often what data should be used. The demonstration team should have been rehearsed again and again so that they don't have to think what they are doing while they keep up the patter with the prospective customers.

It is convincing but quite unnecessary for the normal production programs to be used for a demonstration. If the options in the production programs not required are removed then the programs will probably operate more quickly and may well run on a smaller machine.

Everything you see at a demonstration may not be what it seems. If the first thing a demonstrator does is to enter your company name to appear on output, do not assume just because that is what happens that he did so. A sensible salesman would have entered your name the day before and checked it out before ever you arrived.

Your demonstration will go through a number of stages, one leading on to another. Probably what you see is starting off fresh at each stage rather than using the data just created at the previous stage.

These demonstration techniques are not intended to deceive. The demonstration is intended to put flesh on the verbal explanations, the pictures and the brochures. Slip-ups, finger trouble and anything that can go wrong are just about the norm of every "first-time" on a computer.

The rehearsals, etc, are to provide the routine of a run-in system so that the viewer can actually learn something of the product.

Proving that things can go wrong is a fool's game, so remember that a demonstration is what that word implies: a demonstration.

Cliff Dilloway

FOCUS

Running out of control

CONTRARY to popular (and text book) belief, computer selection procedures are seldom limited to technologies. Weighted evaluation points are increasingly being scored on such matters as the financial track record of the suppliers, their R&D capabilities and their local and national presence.

Maps and balance sheets are playing an important role in selection. The DP selection team must take note not only of future enhancement paths but the local route map. User installations in Portsmouth, for example, would be encouraged by both the local supplier and company management to choose and support IBM.

And Putney users could hardly fail to take note of the presence of ICL, especially if their daily route involved driving across Putney Bridge in the rush hour.

On a nationwide selection basis, IBM would forcibly point out that they are one of the largest employers in the UK computer industry. Burroughs, Honeywell and NCR would mention that they support large-scale UK manufacturing bases, while Univac might be expected to restate its extensive R&D development facilities in the UK.

●

Senior management now expects the DP selection team to include a financial assessment of the competing suppliers. Company management has been known to refuse its approval for the selection until data covering the long-term viability of all the contenders is supplied.

If the DP team is to retain its selection powers, then its approach to computer selection procedures must change. Less weighted points should be extended to hardware characteristics and performance, mips differentials and terminal modularities, with more weight allocated to user-friendly systems and office automation interfacing equipment.

In any case, many computer evaluation studies are now out of control. Selection panels total 12 or more individuals representing all DP areas and activities.

Timescales are measured in months rather than weeks and in the case of State organisations often exceed 2,000 man-hours of involvement.

●

Presenting such elaborate reports to management serves only to underline the belief that the DP team is both out of its mind and depth.

Blowing the chief executives minds with reams of technical data and statistics could well blow the DPM's job, especially as, in too many cases, the production of extensive reports serves only to cover the initial prejudice of the inner selection team.

Anything more lavish than a single screen full of data is suspect and suggests that the DP team has not been able to evaluate the data wood from the data trees. A short, snappy report expresses confidence — the DP team in its selection, the supplier in his ability to deliver the goods, and the senior managers that they will wish to spend minimal time on the proposal.

If such confidence is lacking then company management will have little option but to bring in an independent consultant to assess the selection procedures.

Given the complexities of the computer selection exercise, such outside assistance could become inevitable and desirable for all concerned.

Alan Simpson

DOWNTIME

Land of the Rising IQ

THE average IQ of the Japanese has risen to 111, compared with about 100 in Britain, the US and other industrialised nations, according to a survey published in Nature magazine.

Even more worrying for us, because of its implications for the computer industry, is the corollary statistic that 10% of the Japanese own IQs over 130, against a mere 2% in the UK.

As well as gaining intelligence the Japanese have been producing heavier babies, and growing taller. The gain in height is said to be entirely due to an increase in leg length with body length remaining the same.

Some Japanese attribute this body distortion to the adoption of Western postures, like the upright seating position.

They believe the traditional cross-legged squat on the floor inhibited leg development, or encouraged a long body by forcing the back to grow straight.

Probably nostalgic nonsense. But it leads to the hope that perhaps this frightening explosion of IQ is also lopsided.

Tender world of EEC

ONE of Computer Weekly's recent news items told of an EEC tender competition for the feasibility study leading to a database on EEC regulations. The same story went on to tell of a London-based private viewdata system which was providing details of invitations to tender from EEC countries.

Naturally enough, this led one of our readers to call the second about the first.

Perhaps I should clarify that. The reader thought that if he called the viewdata system operator, he would be able to get the details of the regulations database project and find out where to submit his bid.

No such luck. The database study was not one of the tender competitions listed.

There was a logical explanation. The EEC tender competitions are taken from the EEC Journal Supplement S, which deals with public works contracts from member countries whereas the database study is a research project from the EEC Commission itself, details of which appear in Supplement C, the vehicle for information on scientific research and applied technology projects. Still with me?

Perhaps somebody would care to follow the example of the London firm and put the EEC's scientific and technical information on to a viewdata system. The last of the three sets of supplements to the Journal deals with legislation and that, presumably, is to be taken care of by the database that will result from the study.

It is interesting that Supplement S is mailed to subscribers daily from Brussels for a charge of £61 a year. You will not be surprised to learn that the Commission is reluctant to market it energetically.

No more staff problems

VISITORS to the stately home Thurnham Hall, near Lancaster, may notice something unusual about their guide.

His dress is perhaps a trifle odd, consisting of the robes of an Elizabethan Cavalier. He talks rather hoarsely, but with clarity and precision. His audience hangs on his every word, delivered with motionless lips and inscrutable face.

I am told that some visitors have completed their tour of this stately home without realising that the earnest cavalier guiding them is, in fact, a robot.

Model image

AN advert for a car rental company features the profile of a man who is the spitting image of Blue Ken, our Information Technology Minister. Of course it may be the real Ken, since he seems to have so many fingers in so many pies.

Perhaps because of his wide range of extra-curricular activities, Baker has recently been awarded a new Under-Secretary of State for Industry. He is John Butcher, one of the few MPs to receive largely favourable comment in Private Eye's "New Boys" column.

Chad

10 YEARS AGO

From Computer Weekly of June 1, 1972 . . .

TO ensure jobs of employees at ICL's plant at Castlereagh, Belfast, a joint company was established by ICL and the Northern Ireland Ministry of Commerce to take over a factory producing punches, verifiers and keyboards . . . Use of the computer in education was boosted by a government programme of research and development in computer assisted learning.

More features lower prices

PT-100B Terminal

- Full VT-100* emulation
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PLESSEY PERIPHERAL SYSTEMS

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, June 3, 1982

IBM's reputation is at stake

IBM'S attempts to control the introduction of its Personal Computer into the UK market have failed dismally.

Companies in the UK have shown they will go to extraordinary lengths to get their hands on the machine.

Officially, IBM has refused to acknowledge the demand. But because unofficial operators with an eye to opportunity continue to assume responsibility for marketing the IBM micro, IBM's own reputation is at risk. IBM is being dragged in whether it likes it or not.

Microcomputerland was the first UK company to announce that it had got around IBM restrictions on exports from the US of the Personal Computer. Microcomputerland has since fragmented into offshoots, Microland and Microcomputersource. While Microcomputerland continues to trade, Microland, under the direction of ex-sales director Doug Mudie, claims to have taken with it the original middlemen suppliers to Microcomputerland.

Meanwhile, Microcomputersource, a dormant company initially set up by Microcomputerland and recently sold off to two ex-members of staff, has emphasised that it is quite independent from Microcomputerland and gets its IBM Personal Computers from a different source.

□ □ □ □

Other self-appointed distributors for the IBM Personal Computer include KGB Micros and Northamber. Most offer add-on memory and peripherals, including Winchester hard disc drives, which brings to mind IBM's early competitive battles with the plug-compatible peripheral manufacturers.

To customers buying from such operators, the name IBM will be the one which sticks in their minds. If these customers get their fingers burnt because of a petty squabble between small businessmen setting themselves up as unofficial distributors, or because a peripheral packs up, it is IBM they will look to for arbitration.

IBM's official position is that it does not want to put a product on the market which it cannot support.

Unofficially, it looks as though IBM is releasing its grip on those US suppliers who allow IBM machines which have passed through their books to find their way into the UK market, either unintentionally or deliberately by setting up strings of companies to buy and sell the machines.

The company is facing problems similar to those which rocked Apple with its European distributorship fiasco a few years ago, when nobody knew who the official Apple distributor was.

□ □ □ □

When the Personal Computer was released last year, there were great expectations that the market would be legitimised. To some extent that has proved true. Many of the companies which have so avidly sought the machine in the UK are big corporations which are keen to see if the IBM label will meet their future requirements.

But by leaving UK "distribution" — "test marketing" may be a more apt description — to any company which has the enterprise to import the machine into the UK, IBM has been caught in the seamier side of the personal computer market.

IBM finds itself with these UK problems because it cannot manufacture sufficient supplies to meet worldwide demand. It tried to skirt the problem by restricting the product's release to the US. But it should be possible to step up production, even if the price is high.

In the meantime, while it may not be able to control the actions of unofficial distributors, it cannot ignore the fact that the demand for its Personal Computer is there and being met by non-IBM sources. IBM, to support its reputation, should consider making available in the UK the necessary support staff for the product. It may not be the way IBM planned it, and it may not be as profitable as the company would have wanted it to be, but it will save it some embarrassment.

It is now time for IBM to announce the Personal Computer in the UK and put an end to this confusing situation.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Tony Orme, of Aldershot, who wins £5.

Mr Pearce and the other shop stewards have already had a crash course in computer programming. "It's a piece of cake," he said. "It's as easy as playing a TV game like Space Invaders."

Daily Telegraph

LETTERS

Keep the patient alive

SOFTWARE File (CW, May 20) is quite right to say that software houses will be making a killing on payroll packages. However, there is an incipient symptom that may well turn on them in statutory sick pay.

Statutory sick pay comes into effect in April 1983. Anyone buying a payroll package today would be foolish not to require that they receive the necessary enhancements in good time and free of charge.

The detailed requirements for statutory sick pay will not be published until July. The computer requirements will be non-trivial. It may be difficult to fit those requirements into the available program space in memory or for the extra file data to be stored on disc.

Calculating and keeping track of statutory sick pay (it may be recovered against NI contributions) will be such a chore that software houses will eventually benefit enormously. In the meantime users and suppliers need to take care that remedial treatment can be provided that will keep the patient alive and working.

CLIFF DILLOWAY
Stroud,
Gloucestershire

Micro ledger 'cowboys'

CHRIS YOUETT'S comments on micro ledgers made by cowboys (CW, May 13) strike some chords with us.

In pursuit of the micro market and offering a turnkey on equipment, systems and support we encounter two or three situations every month involving confused and angry would-be users — "would-be" in the sense that they have bought kit and standard packages normally very cheaply and have failed to get systems up and running.

This is due in part to limitations of the package but also from a total lack of support and "hand holding" in the important early stages.

In the important small business market our industry must realise the importance of strong systems and close personal attention to customers' needs. It costs — but the result is satisfaction, a good reference, and a continuing association with the client in succeeding years.

J. R. ALLT
Managing director
Team Computer Services,
Leicester

Polytechnic courses

ON Programmers Page (CW April 15) Philip Hunter stated incorrectly that the Polytechnic of North London provides no courses in computer science as such. This may be true of the Polytechnic of North London Computing Service (of which Peter Jeffreys is the head), but does not apply to the department of Mathematics, Statistics and Computing (the head of department being Dr Goodwin).

Just to put the record straight, this Polytechnic does run a wide variety of courses in computing. These include a Post-Graduate Diploma in applications of computing, a modular BSc scheme in which one can study computing plus either mathematics or statistics or some other discipline, and a two-year full-time Higher National Diploma in mathematics, statistics and computing.

In addition we run a range of short evening courses in computing on topics such as computer appreciation, microprocessors, Cobol, Pascal, Fortran, Comal, Basic, Further Basic and systems analysis.

CYRIL DRIMER
Department of Mathematics,
Polytechnic of North London

Don't give the answers

FOR crying-out-loud, can you please stop publishing the answers to problems in the Adventure game for computers.

The whole point of the game is that it poses problems which are difficult to solve. If the answer is known to any one of the problems before the problem is encountered, the enjoyment derived from solving that problem is forever lost.

People have created a tradition of not ratting on whodunnit in Agatha Christie's Mousetrap and other plays and stories of the same nature.

Until your publication began blurting out the answers the same tradition was observable in respect of Adventure-type computer games.

If you wish to help people who are unable to solve some small part of an adventure then establish some sort of private assistance or sell sealed answers to individual problems with the proceeds going to some worthy charity, or perhaps pose fresh problems where the answers are clues to the answers in the Adventure programs.

The original programmers of the Adventure game, Willie Crowther, Don Woods, Kent Blackett and Bob Supnik freely gave their creativity for the enjoyment of others: Your paper is doing the equivalent of using razors to slash old-masters' paintings.

BILL WILLIAMS
Data Highways Ltd,
London, N10

Teaching of computing

THE juxtaposition of my photo and the caption "New languages could make Ada obsolete, says European survey" (Programmers Page CW, May 13) gives the impression that the statement came from me, although of course the article reveals otherwise.

You also misquoted me a bit regarding the teaching of computing science at schools. I actually said that, if computing science is to be taught at school then children going into science should be taught something like Pascal which builds on set theory rather than Basic which is not well disciplined.

J. G. P. BARNES
SPL International,
Abingdon,
Oxfordshire

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Scots' micro education

DAVID HEARST wrote (CW, May 6) about the history and problems of the Scottish Microelectronics Development Programme. While I would agree with much of what was said, I feel that it creates a false picture of the overall state of educational computing in Scotland since SMDP is only one element of the total network.

Indeed, most of the problems which have been described have arisen because SMDP has been expected to be all things to all men.

In Scotland, as well as in England and Wales, the central agencies may encourage and monitor changes in education, but it is the local authorities which finance, initiate and control almost all the developments.

Local authorities have provided most of the hardware, facilities and manpower currently being used in the development of computing in their schools and colleges. This is not to supplement a lack of central provision, but because this development is seen as being a priority by the local education committee.

I therefore enclose an article describing the current situation in Scotland which I hope you will publish in an attempt to correct any misunderstandings created by Hearst's article. I have refrained as far as possible from adopting the role of apologist for SMDP, because there have already been too many public arguments about the failings or otherwise of SMDP.

COLIN R. MacLEAN
Assistant adviser in
Microelectronic technology
Lothian Regional Council
Department of Education,
Edinburgh

Space permitting, it is hoped to publish the full text of MacLean's article at a later date. — Editor.

Faster even than Cray-2

I WAS amused to read the front page article entitled "Fastest Computer in the World" (CW, April 22).

Users of the 64 x 64 DAP (Distributor Array Processor) here at QMC have measured performances of up to six times the Cray-1. So even if the Cray-2 materialises, it will not overtake the current performance of the DAP!

D. PARKINSON
Computer Centre
Queen Mary College
London

Liveware File

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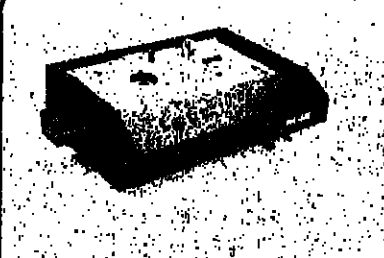

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OP SPOT

University tests VDU guinea pigs in their natural environment

MY regular reader will no doubt be aware that I have often gone on at great length about the health aspects of working with VDUs and associated new technology. So when I received an invitation from the British Computer Society to sit in on a meeting of the displays group, enticingly titled "Where do you put your coffee?", I felt obliged to attend.

Two of the speakers, Peter Howarth and Howell Istance of the Institute of Consumer Ergonomics at the University of Loughborough, are currently involved in a survey to identify what problems office automation introduces. Over 200 subjects at six sites using VDUs and six with conventional office equipment are being tested for both eye problems and physical discomfort for a complete working week.

By means of both physical tests and questionnaires, Howarth and Istance hope to highlight the differences between the two working environments. Different job types will also be investigated; as Istance says: "The time spent looking at a VDU varies greatly with the type of work being carried out – audio typists using a word processor spend more time looking at the display than do copy typists."

He claims that this is one of the critical points often overlooked when investigating VDU-related health problems. Another difficulty lies in the fact that there are many problem factors involved with the introduction of new technology and the humble VDU is only one of them.

"Computer systems introduce change, not VDUs," says Istance. The Loughborough survey will investigate such parameters as the general level of office lighting, the amount of detail read from the screens, glare, reflections, noise and the office climate.

In addition to the comparisons drawn between the six conventional and six automated offices, a special study of workers who alternate between word processors and typewriters will be carried out. The subjects will provide unique data in that they form their own controls, enabling an accurate measurement to be made of the differences encountered between the two technologies.

Howarth claims that this survey will prove to be invaluable in that it involves subjects performing their normal jobs in their normal working location. Previous investigations have tended to be more laboratory-oriented, which may throw their results into question.

"The whole visual system must be measured," says Howarth. "Not just the eye – the brain must be included – if you have your leg amputated you can often still experience an itchy toe. Perception lies in the brain, not the eyes or ears."

So what handy hints for comfortable use of VDUs came out of the meeting? One on which all the participants agreed was that in a multi-screen environment, all displays should be the same colour – eyestrain is more likely to result from the colour differences.

This must call into question the current trend for mainframe ops' consoles operating in glorious technicolour – any sufferers out there?

The golden rule to apply when using any VDU is that the character size should be at least one two-hundredth of the eye-to-screen distance. One speaker announced that certain displays – stroke refresh, where the entire screen is repainted seven times a second – are the worst offenders when it comes to eyestrain and headaches:

"They quite often have a sticker on them which says 'Do not use this screen for more than three hours'."

All in all, an interesting meeting, but I still don't know where to put my coffee.

The King of Pac-Man

I'LL bet you think you're pretty good at computer games like Space Invaders and Pac-Man. I can see you propped up against the machine in the saloon bar of the Dog and Bucket, nonchalantly knocking up a large score to impress the youngsters.

But you've got some way to go to beat Canadian Eric Schwibs. He started a game of Pac-Man at 9.45 pm, and finished it at 6am the next morning, having clocked up a score of 2,935,590. After more than eight hours' continual use, the machine gave up.

"I am the king of Pac-Man," announced a modest Schwibs. Can anyone claim to have played a computer game for longer? The best I've seen is five hours, two minutes and one second of Adventure (score 335) – but you don't have to put money in the slot to play that.

"I'm a victim of the microchip revolution – I used to be the pub's dominoes champion."

by Andrew Thomas

For Adventure-seekers

DESPITE the Dungeon Master's threat a few weeks ago to reduce me to a heap of ashes for helping you with your Adventure problems, here is another batch of questions. *(Good lord, does this man know the meaning of fear? Ed.)*

Bridget Harrison from Oxford asks how one returns from the island with all the treasure (sapphire, portrait, rug and ZS note), without sinking the beautiful pea-green boat? Bridget is also concerned as to what (if anything) one does with the ZS note.

This sounds like an Adventure derivative – I don't remember an island in the version I used.

Now for something in which you can possibly help me. Several people have contacted me recently asking for a source for Adventure or Dungeon. I have also received offers of new versions.

Now, the people offering copies could not cope with the flood of floppies which would no doubt descend on them were I to publish their names, and, much as it pains me to admit it, I don't have access to a computer myself.

But with people offering free copies, and others wanting them, is there not some way of bringing them together? Suggestions on a postcard please.

PROGRAMMERS PAGE

Even after twenty years, trying for portability is still no joke

by Philip Hunter

IT is no joke transferring a large suite of programs from one machine to another. And I know what I'm talking about. I spent a yenr writing machine-independent Fortran subroutines for a large project control system.

The concept of program portability germinated from experiences gained in writing Fortran subroutines for general scientific applications. People like the Atomic Energy Research Establishment at Harwell and the Numerical Algorithms Group at Oxford have been producing libraries of scientific subroutines in Fortran for about two decades now, and have had time to digest much feedback from users.

Early efforts in machine portability were inevitably somewhat clumsy and bug-ridden, but now the standard of code is high, with NAG for example devoting much effort to testing.

There are also large engineering and management systems written in Fortran, with machine independence a prerequisite. As a result many of the problems of program portability can be understood by looking at Fortran.

One is the looseness of the most common standards of Fortran in use: Ansi 66 and Fortran 77. This means that a subset of these standards must be used if real portability is to be achieved.

Then there is the very difference between the two standards. Certain facilities available with Fortran Ansi 66 have been left out of Fortran 77, either because they were not much used, or because they were considered ugly by the purists, difficult to implement, or not commensurate with the foreseen development of the language.

In fact Fortran 77 keeps certain facilities only to retain compatibility with earlier standards like Ansi 66. These include the intrinsic functions such as FLOAT, which converts an integer into a real number. Clearly these are best left out of any portable program since they are likely to be dropped from future standards. After all, true portability extends into the fourth dimension – programs should be independent of time as well as machine.

Harwell scientists have been writing scientific sub-routines in Fortran for decades now.

Even when a suitable subset has been chosen and adhered to, other serious problems arise, and these, I believe, can be classified under two headings: word size and machine idiosyncrasy.

Word size affects the portability of arithmetic operations, and of comparison between character strings. For example, the Control Data 7600 allows 60-bit words, while many microcomputers only allow 16-bit words, with many intermediate sizes possible.

Word size determines the size of integer that can be stored, the accuracy of calculations involving real numbers, and the number of characters that can be held in one variable for comparison.

Machine idiosyncrasies pose a number of problems, a serious one being the representation of characters. Fortran allows characters to be compared with numerical values – you could hardly wish for a more machine dependent action.

Under the same problem heading come statements or arithmetic expressions mixing real and integer values (some machines allow this, others do not) and input/output unit numbers.

Particular care has to be exercised over the parameters used in subroutine calls. Usually the machine handles these by sticking them in consecutive addresses so that the call at machine level need only consist of the first address and the number of parameters.

But compilers vary, so it is important to be consistent in use of parameters, avoiding, for example, assigning an integer value to a parameter in the calling program, only to use it as a real number in the routine being called.

This compendium of the problems involved shows that complete portability is impossible to achieve by writing Fortran alone – allowance has to be made for the particular machine.

This has long been realised by designers of large packages for use on different computers, who came up with the idea of the preprocessor. This acts as a high-level compiler, producing Fortran code in the dialect of the local target machine from some prespecified standard.

Several large application suites have been written in a home-built version of Fortran, using a series of dedicated preprocessors to convert the code into the dialects of the various machines on which the software is to be implemented.

In theory this allows the programmer writing code to be certain that it will successfully compile and execute on any machine for which a preporocessor has been written.

Word size and arithmetic precision are guaranteed: for example the programmer can specify an integer precision of 16 bits independent of any computer. The preprocessor concerned will scramble code using this integer into local Fortran that will guarantee this precision whatever the word size available. Clearly different action has to be taken for an 8-bit machine from that for a 64-bit machine.

The trouble with preprocessors is that they themselves take time to write and test, and a new one has to be written every time the software they serve is to be implemented on a new machine. But they are useful for producing machine independent programs and they can enable relatively inexperienced programmers to gain experience.

No sausage-machine solution with coding

IT is still impossible to lay down the design for a large complex system, and have the computer generate the code and documentation. There are simple systems where a goal can be specified, a proverbial handle turned, and an algorithm produced, but these fall short of converting complex needs into detailed design.

A more likely path towards the automatic system builder lies in following the example of the data dictionaries, which provide the ability to build networks of information about a system.

One such system has recently been offered to its users by Sperry Univac. Developed for internal use only, it was later deemed safe and reliable enough for general consumption. Sperry claims that it is far more than a data dictionary, giving users the chance to match the requirements of a system with the realities of the detailed design down to the exposition of algorithms in pseudo-code, the specification of parameters and the return of values by subprograms.

Before examining the strengths and shortcomings of Univac's new tool, it is worth looking at it in some detail.

It consists of a Requirements and Development Processor (RDP), and a language called RDL, which enable the design of a system to be built in a hierarchy of elements which refer to other elements at higher and lower levels.

As it is possible for more than one element at one level to refer to the same element in the next level up or down, networks can be created. Usually, however, RDL will be used to reflect the "top-down" design of a system starting with a single lead element and yielding a hierarchy.

The finished database can be updated by redefining an element, or can be interrogated to elicit information about an element. An example in the case of an element which relates to several subprograms might be the name of the group assigned to code it, and the number of man-days allocated.

The base can also be used to provide documentation. Each element can have a title specified, and a general description can be as long as the space available allows.

At the bottom of a hierarchy comes the exposition of algorithms in pseudo-code, which can be incorporated in documentation. The element which includes the algorithm description can also provide information about its purpose. This can be useful in making comparisons between the system as described in the database, and the fictitious system in the mind of the designer.

In fact, this is the chief wisdom of RDL: it enables a specification to be verified. Clearly the system will not allow entries inconsistent with its axioms, like for example two elements each specifying the other on a lower level.

The system will provide some cross-reference, such as a list of subprograms or procedures that are affected by a particular algorithm or invoked by another subprogram.

So RDL allows a model of a system to be built, but does not yet offer any testing, or integration of code. Nor does it perform any automatic updating of elements affected by changes made elsewhere.

At least RDP makes no false claims, and is certainly a workmanlike tool for developers of large systems involving much manpower.

For example, RDL does not provide detailed analysis of the progress of the project down to the last subprogram. All it can do is present is accept textual data on progress which can be updated, say, every week.

Still, the idea of linking all levels of system development is a good one. There is the prospect of automatic verification of each level of design, eventually culminating in the integration of programs into the whole system.

PUZZLER

TWELVE
ELEVEN
SIXTY
SEVEN+

NINETY

Given the fact that Y is even, can you identify all ten of the digits in this alphanumeric addition sum? See page 37 if baffled

PEOPLE

Sales team reshuffle at Storage Tech

THERE have been several substantial changes in sales and marketing at Storage Technology in the US.

The position of vice-president of world-wide marketing has been created, and is held by **John Scott**. He is replaced as vice-president of Western area operations for domestic sales by **Daniel Ellis**, previously vice-president of marketing.

Former manager of product marketing **Gary Holtwick** has become division vice-president of productive marketing. **James Preston** has been elected an officer of the company, by the board. His title of vice-president of Eastern area operations for domestic sales remains the same.

Zilog top men

ZILOG has appointed former Signetics general manager **Franc de Weeger** president and chief executive officer. He replaces **Manny Fernandez**, who left Zilog to form a new company.

De Weeger was director of materials, at National Semiconductor in Santa Clara, California before joining Signetics in 1979. Before that he was a director of Motorola's semiconductor group.

CENTRONICS Europe vice-president Terry Harris raised over £2,000 for the Save the Children Fund when he successfully completed the London Marathon in 3 hours, 2 minutes, 2 seconds. It was something of an achievement for Harris, who had never run in a marathon before and who was labouring under the additional handicaps of an injured ankle and strained hamstrings. He was sponsored by a number of companies and individuals, including Centronics.

■ **Roy Dorey** becomes the first executive director of Citytec (Hackney). He was previously project manager at the Dol's Microprocessor Applications Programme (MAP) and subsequently advanced technology manager of Nexos Office Systems. Citytec is the City Technology Centre, which is aimed at increasing microprocessor awareness in small firms in East London. The project is sponsored by the London Borough of Hackney, the Department of the Environment and ICL.

■ **Susan Winston** has been appointed data processing manager at Package Programs, PPL. She was formerly a consultant with Software Architects. Also joining the company is **Ian Walker**, who becomes a programmer for Ace asset management systems.

■ **Jim Field** has joined APL-Plus to jointly lead the company's software support and installation team with **Peter Cyriax**. Field previously worked for BP and I. P. Sharp Associates.

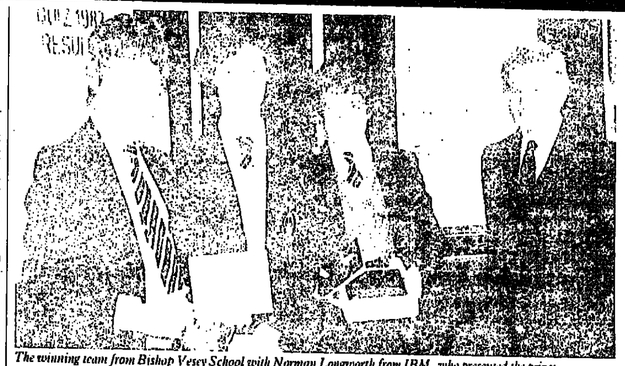
■ **Chris Halford** has joined Holbrook Business systems as a systems analyst. He previously spent several years with Canadian provincial government as a project leader.

■ **Richard Palmer** has become head of customer training with Ferranti. He was formerly a lieutenant-commander with the Royal Marines, most recently engaged in training administration.

■ **Kent Keller**, president of the US company Jason Trent, has been appointed corporate PR counsel for Electronic Conventions Inc, in which capacity he will advise on publicity for the Wescon, Midcon and Mini/Micro shows, among others.

■ **Stephen Kirsh** has moved to Nixdorf in the City of London as a sales executive selling the 8870 series of minicomputer systems in the London area. He joins from Datasaab where he sold small business systems, **David Scollay** has also become a sales executive with Nixdorf, responsible for a wide area which includes Norfolk and Suffolk. Previously he sold minicomputers for Alpha Micro.

■ **Stan Kilvington** has given up his own company to take over responsibility for customer and sales support with Advanced Systems.



The winning team from Bishop Vesey School with Norman Longworth from IBM, who presented the prizes.

Midlands school quiz

TWENTY-ONE schools entered the West Midlands Computing Group's quiz competition this year, answering questions which ranged from "What is the name given to a single binary digit?" to "What is the name of a system of workstations connected to a central master computer and backing store?"

The contest was won by Bishop Vesey School, Birmingham, which received the IBM Schools Computing Cup, a cheque for £100 and a Sinclair ZX81. Team members – seen here with IBM schools liaison officer **Norman Longworth**: **Stuart Cheshire**, **Nicholas Tingle** and **Andrew Jones** – were awarded pensets from IBM and a book from IT82.

■ **Jack Boardman** has been appointed sales manager at RUF Business Equipment. He was formerly dealer sales manager at TEC (UK).

■ **Philip Hamer** has joined the defence systems equipment arm of Plessey as director of overseas operations. He was formerly defence electronics specialist consultant at PA Management Consultants.

■ **John Coe** has become a senior consultant with Reed, Stead, Morrell. He will specialise in VM, DOS/VSE and multiple 4300 environments. He was previously technical manager with P&O Computer Services.

■ **Richard Price** has been appointed an executive director of European Marketing Consultants. He was formerly communications manager at Nexos.

■ **Martyn Collinson** of Consultants (Computer and Financial) has been promoted from sales manager to marketing director.

■ **Peter Boyce** is sales support engineer for Engineering Computer Services, responsible for the area between London and Birmingham east of the M5. He was formerly an application engineer with Société Genevoise at Newport Pagnell.

■ **Ian Hearn-Phillips** has become European technical support manager for Winchester drive manufacturer Priam, and is based in Reading. He was previously with Tandon as international product support manager.

■ **Tim Shears** has joined MSA as a systems consultant, from Forest Accounting where he was senior accounting recruitment consultant.

DIARY

JUNE 7-8
Computers in medicine. IEE. IEE, Savoy Place, London. Details on 01-240 1871.

JUNE 8
Word Processing and COM. BCS Microform Group. NCR Theatre, Marylebone Road, London NW1. Details Chris Marles 01-434 1031. £10 BCS members, £12 non-members.

Data administration working party. BCS. Details David Stenton, 01-486 3947.

JUNE 9
Meeting. BCS Database Group. Details Ian MacDonald 01-405 8233.

JUNE 10
Commercial value of computer education. BCS Advanced Programming group. Prudential Assurance, London EC1. 6.00. Details Mrs Theresa Drewon; 01-580 6622 (mornings only).

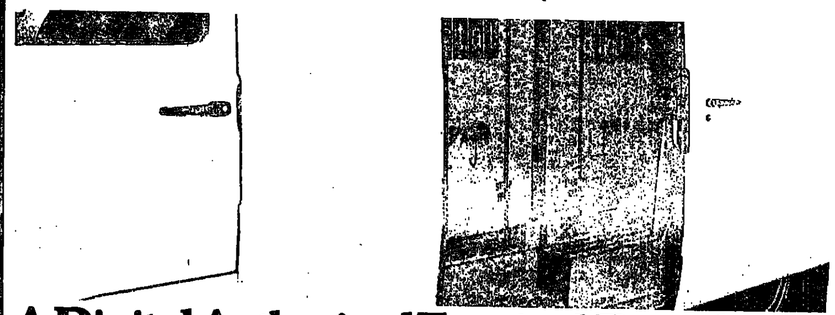
JUNE 18
Communications – getting it all together. Sir George Jefferson, chairman of British Telecom. BCS. Royal Society, London SW1. Details BCS external relations Dept.

JUNE 20
Visit to the Midland Railway Trust. BCS Nottingham Group. Details Ray Fowler on Nottingham 415415 ext 4725.

JUNE 23
Petnet and Pet computer networks. BCS Sussex Microcomputer Group. Meeting Room, King and Queen, Marlborough Place, Brighton. 7.30.

JUNE 27-JULY 2
Computer-aided design of filter networks. Second IEE vacation school at University of Essex. Details IEE, 01-240 1871.

JUNE 28
Local area networks. BCS WP&OA SE branch. United Reform Church, Small Hall, Addiscombe Grove, Croydon. Details Sandy Hathaway 66-35925.



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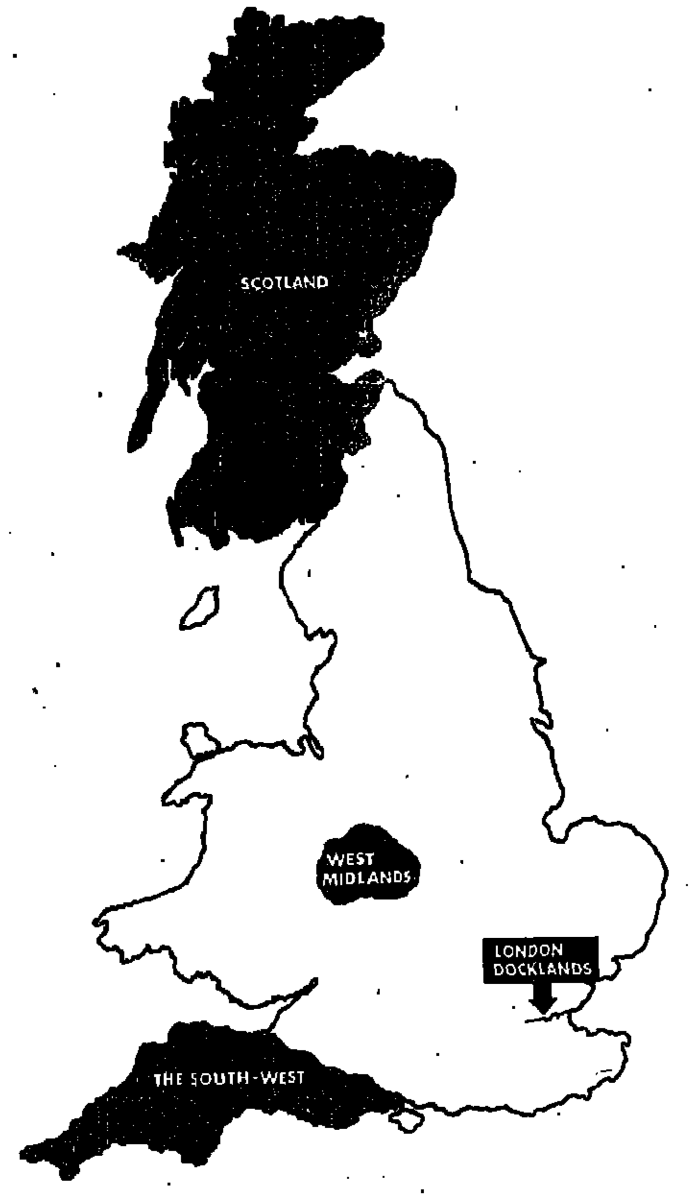


The rules of regional development policy keep changing under successive government administrations. In this four-page special report, DAVID CASEY highlights the various grants and development support schemes available from local and central government in four regions.

How changes in regional aid rules have held back Britain

LIKE the ball in a political tennis game between successive governments at Whitehall, regional policy has changed direction with monotonous regularity since the war. Not content with playing to a single set of rules, Ministers feel free to change the size of the court – and the scoring system – while the game is in progress.

While no government with an eye to the ballot box would admit this was true, constantly changing regional assistance programmes may actually serve to defeat the objective for which they were created. Yet the approach to regional aid is a key element in national economic strategy: for almost 40 years, complete regions have constrained Britain's rate of growth.

By 1945, six years of military production had taken their toll on the industrial structure of Britain, accentuating the economic problems created a decade earlier. An apparent surge in industrial production concealed pockets within the national economy where output had declined and unemployment was again on the increase.

A system of grant aid for companies moving into these underprivileged regions was the Attlee government's response to the problem – a measure replaced largely by tax allowances by the Conservative administration of 1951.

Whatever the nature of the financial carrot, however, there was a corresponding stick to be wielded in Whitehall. Factory building in the economically stable London and South-east became subject to development permits designed to discourage major new projects.

Declining demand during the 1960s for shipbuilding, coal and steelmaking did little to stimulate development in the UK's assisted areas. More positive action, in the form of grants up to 45% of capital cost under the 1966 Labour government, immediately attracted companies to the priority regions, but created areas of economic blight in their wake.

On one side of the regional boundary business appeared to thrive, while only a few yards away, factories were idle for the lack of incentives.

Progressively graduating the assistance available to a region has helped to remove many of the anomalies of financial assistance, and is the vehicle used to fine-tune local economic conditions. Special Development Areas qualify for maximum assistance, attracting 22% capital grants for buildings, new machinery and plant.

Until measures introduced by Sir Keith Joseph as Industry Secretary in July 1979 reduced the grant for basic Development Areas by 5%, to 15%, these locations were broadly comparable to SDA regions. Rather than increase the statutory aid to the SDAs, the policy of the present government has been to reduce the assistance elsewhere, increasing the margin of incentive.

Prior to 1979, Intermediate Areas – a band surrounding most Development and Special Development Areas – qualified for automatic capital grants, but this concession has been reduced progressively so that new investment after August 1982 receives no grant from central government.

All three classes of assisted area are still eligible for selective assistance, a provision of the 1972 Industry Act. There is no automatic right to funding: a company must demonstrate that the investment would not otherwise have been made, that it would have been at a lower level, or delayed. Discretionary grants to encourage employment are awarded on a similar basis, the criterion being that a company moving to an assisted area has a genuine choice between locations and would not proceed as proposed without financial support.

The taxation position of regional funding depends on the source. Statutory grants for SDA and DA investment are not deducted from the total cost before tax allowances are calculated, so that the net cost of a project is reduced still further. For every £1 of gross investment in an SDA by a company paying 52% corporation tax, the real cost is reduced to 20p. All other forms of assistance are treated as trading income, however, increasing a company's total liability for tax.

Among the miscellany of aid for which a business might qualify are loans on preferential terms from the European Coal and Steel Community fund in the EEC. Areas in which either steel or coal were once dominant activities attract finance as an aid to reducing the critically high levels of unemployment which prevail there.

Adding Enterprise Zones in 1980 to the list of regional incentives has allowed the government greater flexibility to pinpoint areas for assistance. Critics maintain that the Enterprise Zone concept – in which companies are given ten years free of rates and require only nominal planning permission – is a blunt instrument. The objections raised are two-fold.

With such a concentration of incentives on an area as small as 400 acres, a surrounding band many times that size will fall rapidly into decline and create even more unemployment. No less a criticism is that the benefits will not be passed directly to the company moving into the zones. In the absence of rates, freeholders will raise their rentals and reduce the net saving to the tenant company.

Since Enterprise Zone status is additional to SDA, DA or Intermediate Area assistance, there are localities on mainland Britain – such as Speke on Merseyside – which qualify for 22% grants, selective funding and a 10-year rates remission. These attractions pale into insignificance, however, when compared with Northern Ireland incentives.

REGIONAL STATUS	STATUTORY GRANTS	SELECTIVE ASSISTANCE (EMPLOYMENT)	SELECTIVE ASSISTANCE (OTHER FORMS)	EEC FUNDING	TAXATION EFFECT	NOTES
Special Dev. Area	22%: Buildings Plant, Equipment	£8,000 maximum per job created	Coal-fired Boiler Scheme	Up to 50% Loans for fixed investment	100% 1st year allowance on plant	
Development Area	15%: Buildings Plant, Equipment	£5,000 maximum per job created	Product and Processor Development Scheme	Nil		
Intermediate Area	Nil	£2,500 max. per job created	Microprocessor Application Project	Up to 50% Loans for fixed investment	79% first year followed by 4% p.a. on buildings except for small industrial (100%)	
Non-Assisted Area		Nil	Microelectronics Industry Support Programme			
Northern Ireland	30-35%: Buildings Plant, Equipment	Negotiable with NID		ECSC funds where jobs are created in C and SC Areas		
Coal and Steel Closure Areas	Dependent on whether area is SDA, DA, IDA or unassisted region	Depends on reg. status as statutory grants	Government factories (assisted areas)		Grants in assisted areas do not reduce capital expenditure for tax relief except in NI when grant exceeds 45%	
Enterprise Zones			Training Services	Dependent on status of area		10 years' rates-free minimal planning requirements

Computer industry's vital role in injecting new life to London Docklands

FOR more than 30 years after the Second World War, successive governments confined their regional policy to the "problem" areas of the UK, where industrial decline had led to severe structural unemployment. Relative to the depressed areas of Tyneside and Merseyside, London and the South-east enjoyed full employment and required no positive assistance. Indeed, factory building within a large radius of London required an Industrial Development Certificate as a constraint on indiscriminate expansion.

It is ironic, therefore, that the most significant element in this government's regional strategy evolved from a speech on the London Docklands by Sir Geoffrey Howe when the Conservatives were in opposition. Introduced as a feature of the 1980 Budget speech, Enterprise Zones were conceived as a positive attempt at regenerating carefully defined areas.

In sharp contrast to the subsidies and grants available in more traditional development areas, the assistance envisaged for the Enterprise Zones was to take the form of an abolition of planning restrictions and relief from local authority rates for ten years.

The existing priority areas have attracted their fair share of Enterprise Zones. There is one on Clydebank, one in Swansea and one in Hartlepool, for example, with a further eight zones taking shape throughout the UK.

Of these, the scheme developed for the Isle of Dogs is exceptional in that it is the first attempt by a government to attract new business into the South-east.

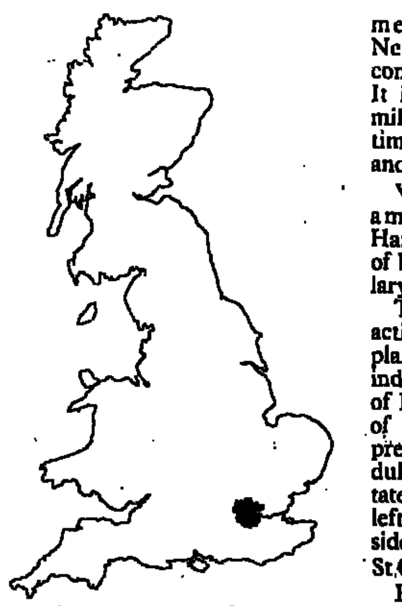
The London Dockland does not have the status of a development area, so that it cannot attract new business with conventional regional assistance. But the package of fiscal and planning incentives available to companies in any of the Enterprise Zones will have a marked effect on the future of London's East End.

Under the chairmanship of Nigel Broakes, the London Docklands Development Corporation is the organisation with the daunting task of injecting new life into the area. It was set up ten months ago and will eventually take on the full powers of a new town development corporation. In that capacity, it was formally invited by the Department of the Environment last month to start procedures leading up to the creation of a 475-acre Enterprise Zone centred on the old West India and Millwall Docks.

The zone was offically designated in April and formally opened by Sir Geoffrey Howe on May 21.

There is little to suggest that the expanse of dock basins and dilapidated warehousing left vacant in 1980 will ever become a dynamic industrial centre. It is even less conceivable that the skills on offer from redundant London dockers could be fully utilised by companies moving on to the site. But reducing local unemployment is not the main objective of the Development Corporation.

For the area to regain and then sustain a stable economic base, it is vital that companies in growth industries are encouraged to move to the Docklands Enterprise Zone.



So often with "economic revival" plans, the influx of business to a development area falls below expectations. In the case of the Docklands scheme, the optimism of the Corporation is already being borne out by the range and strength of the companies which have applied to move on to the site.

The film studios of Southern Television, for example, will be relocated there and will provide a nucleus for a "cottage" video and recording industry.

In terms of the capital investment in the site, Telegraph Newspapers is perhaps the largest company involved in the project. It is estimated that close on £80 million will be involved by the time its site has been developed and the plant installed.

With severe unemployment among teenagers in Tower Hamlets, there is every possibility of bringing local people into ancillary jobs on the site.

To complement the commercial activity in the Enterprise Zone are plans for establishing a national indoor sports centre within the Isle of Dogs complex. This is just one of the proposals designed to prevent the area becoming another dull and uninspiring industrial estate. The docks basins are to be left intact, for example, with quayside development along the lines of St Catherine's Dock.

For companies prepared to help develop the Isle of Dogs, the principal attraction must be the 100% write-off available on new buildings. Simplified planning procedures will greatly assist these firms and be an even greater incentive to the tier of smaller businesses needed to provide a balanced industrial profile for the area. It is envisaged that land for development will be available on long-term leases, either for a single premium, or financed through ground rent.

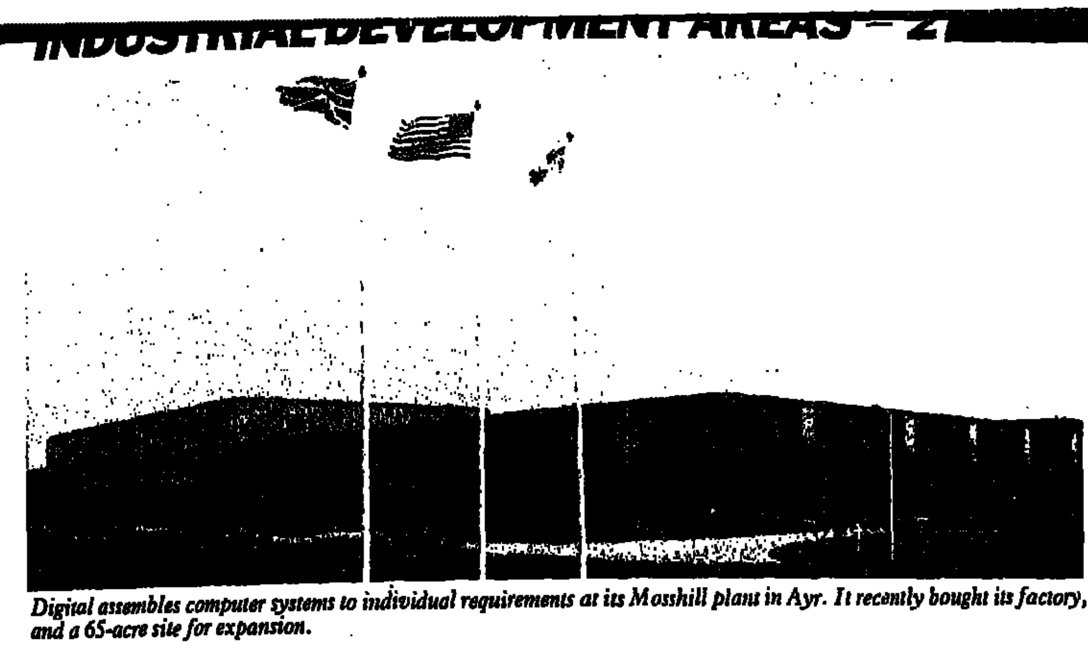
Central government curbs on local authority financing have been followed by sharp rises in rates. At a time when commercial ratepayers – who are not shielded by a Whitehall subsidy – are faced with supplementary demands ten years' freedom from rates is a major advantage.

The prospect of a daily journey by road through the East End could take just a little of the gloss off an Enterprise Zone job. London Underground stops short of the West India Docks and outline plans for extending the network have been shelved. Conscious of the implications that this could have for employment in the area, the Docklands Development Corporation is currently examining submissions for a light rapid transport system, which would link the Enterprise Zone with an underground line to the City.

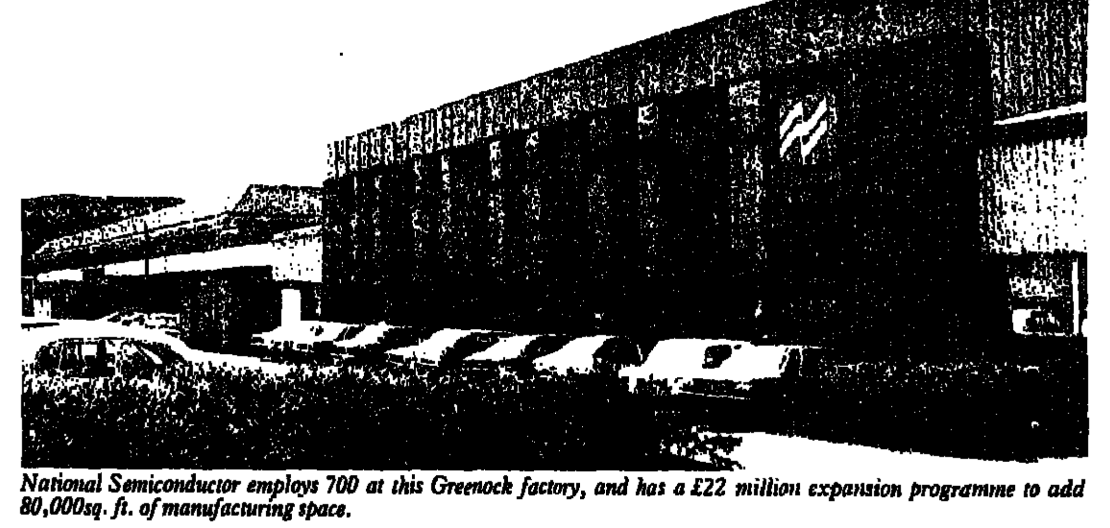
In the short term, an express coach service will be provided between the site and Mile End on the District Line.

With proximity to the centre of London as its most obvious attraction, the Corporation is confident that demand from companies wanting to move on to the site will exceed the space available. It will therefore be in a position to exercise careful control over the type of industry it accepts.

There will be no sterile expanse of warehousing employing three men and a robot stacker, and the area should avoid the mushrooming of ventures attracted only by the Enterprise Zone incentives. London Docklands have a future – one in which the computer industry could play a vital role.



Digital assembles computer systems to individual requirements at its Mosshill plant in Ayr. It recently bought its factory, and a 65-acre site for expansion.



National Semiconductor employs 700 at this Greenock factory, and has a £22 million expansion programme to add 80,000sq. ft. of manufacturing space.

Electronics holds out hope of recovery for Scottish people

TO the desk-bound Londoner, the North starts at Watford. On this scale of reckoning, Scotland is far beyond the borders of Betjeman's Metroland; a country where shipyard cranes tower over busy dockyards and factory chimneys are the sign of a thriving manufacturing industry.

Few economic analysts North of the Border would agree with this impression of the regional economy. Mounting unemployment is a grim reality, as traditional industries rationalise or become uncompetitive in the face of subsidised imports.

The problems facing Scotland have, however, been recognised by successive governments. Under Whitehall's regional assistance policy, Development Areas were designated when the concept was first established. These have subsequently been upgraded to Special Development Area status where conditions are most acute, offering 22% capital grants and comparable incentives for job creation.

To the people of Scotland, the electronics and computing industries represent a real hope of recovery. By attracting a cross-section of companies representing the full spectrum of technology, the planners will avoid the pitfalls of a community becoming too closely associated with a single industrial sector.

While financial incentives are a key factor in a company's decision to relocate, many components of Scotland's "package" are available elsewhere in the UK. South Wales, a steel and coal closure area, for example, has access to the same funds from the EEC. Over in Northern Ireland, the financial budget is even stronger, although many companies would discount the cash bonus in the Province as a risk factor.

For a company considering expansion in any of the UK's assisted areas, funds will be drawn from several sources. Apart from the statutory development grants from the Department of Industry, there may be selective employment grants from the DoE and specialist funding from Europe.

The key to Scotland's marketing strategy is Locate in Scotland. Offering what the unit describes as "one-stop shopping", Locate in Scotland provides from a single source both the advice and assistance available to a company.

With the emphasis on attracting high technology to the region, the project has a specialist electronics team with direct experience of the industry. The aim is to strengthen the existing base of 200 companies from this sector, employing more than 40,000 people. In terms of these companies' "pedigree", about two-fifths have their principal operations elsewhere in the UK. A similar proportion are from overseas countries, while the remainder are indigenous Scottish enterprises.

Scottish higher education has a long history of involvement with industry: its role is now shifting rapidly towards advanced computing and electronics. Relative to their English counterparts, the country's universities have a higher proportion of students in engineering, scientific and business subjects.

Edinburgh University, for example, is closely involved in electronics through the Wilson Institute, where research is currently being undertaken in integrated circuitry and artificial intelligence. The city's second university, Heriot Watt, claims one of the oldest science parks in the UK.

Helping to establish links with the education sector is seen as a prime task for Locate in Scotland over the next five years. For a company moving to the region – or attempting to expand an existing site there – this practical assistance complements the statutory and discretionary financial support available in Scotland. While Locate in Scotland has no influence in the payment of regional development grants (a company qualifies simply by being there), the team can assist with the documentation.

When funding is selective, central government resources hinge on a company demonstrating its viability, and the fact that without the support expansion would either not take place, or it would be in another country.

The role of Locate in Scotland is particularly critical when Scottish Development Agency finance is at stake. Current policy is to take only a minority involvement in a company, rarely more than 25% of the equity. Where preference shares are taken up, however, the SDA may take up a significantly greater proportion.

Under no circumstances would the Agency seek to become the majority shareholder, preferring instead to invest alongside commercial banks and insurance companies.

David Wilkins, marketing manager of the Locate in Scotland project, outlined the SDA's objectives in making an investment. "We normally look towards holding an investment for five to seven years, and then sell our stake back to the prime movers. We see our funding as an influence in bringing people into Scotland, rather than a subsidy – the SDA is required to make an economic return on its investments."

Under competition from other UK regions, Scotland's unique selling point is a good operating environment rather than as an area which can offer the highest cash returns. The fact that some parts of Scotland do qualify for the highest level of grants, European Coal and Steel Community funding and rent free accommodation, is a bonus.

Wilkins contrasts his organisation's marketing approach with that of the Welsh Development Agency – much in evidence through its television advertising campaigns. "We are tending to concentrate on particular sectors where we think Scotland has an established track record, a good basis of research and a first-class skill base. While we are keen to attract computer applications, we do not have to employ non-target generalised advertising."

● Turn to page 19

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Minister for Information Technology, Kenneth Baker (left) visits Aztec West.

Lack of direct cash grants is no handicap to South-west

PROMOTING a region of the UK which can offer no development grants, European assistance or subsidised accommodation might appear an unproductive task. For the team at Bristol Economic Development office, marketing the attractions of Avon County presents a stiff challenge in the face of competition from South Wales, Scotland and the Irish Republic.

Until the lifting of Industrial Development Certificate requirements for non-assisted areas at the end of 1981, Avon suffered an additional handicap in that new factory building was subject to IDC constraints.

Abolishing Development Certificates with the minimum of publicity from Whitehall has done little to improve industrialists' awareness of the region in the short term.

Despite having the odds stacked against it in terms of incentives, Avon County has been successful in attracting new business. The decision by Hewlett-Packard to develop a 165-acre site immediately to the north of Bristol City suggests that direct cash grants are not the most important consideration.

Mike West, economic development officer for the City Council, maintains that regional assistance has a relatively low priority in most companies' decision to relocate. "When we talk to management, it becomes clear that the offer of finance is only attractive if every other factor is right."

Easy access to other centres of commerce and industry in the UK is one incentive heavily promoted by West and his team. With London 70 minutes away by train, Bristol does not suffer the geographical isolation of Scotland and the assisted areas of North-east England. A provincial airport at Lulsgate provides limited facilities for airfreight, but Heathrow is directly accessible on the M4 motorway for international passenger traffic.

As a county, Avon is a product of the 1972 Local Government Act. By far the largest of the six administrative districts within its borders is Bristol – before the reorganisation, a county borough with total control over the facilities it provided. Despite being stripped of responsibility for key services, including education, the city still dominates the economy of the county.

A prominent feature of economic development in the area has been the establishment of industries closely dependent on each other. Tobacco, packaging and printing evolved jointly and stimulated the engineering industry producing machinery for these first-line activities. High taxes on tobacco products – and successive health campaigns – have therefore taken a heavy toll on local employment.

A second industrial grouping, aerospace technology, provided employment in the area for skilled technicians, engineers and support staff, but this cannot guarantee long-term economic stability. Once the home of the Concorde project, British Aerospace at Filton is totally dependent on Whitehall contracts. Public expenditure cuts are therefore refelected in the pattern of unemployment.

To the local authorities in Avon County, attracting a handful of major high technology companies from a narrow sector of industry is a two-edged sword. While radically reducing surplus labour capacity in the short term, such a strategy could expose the region to further problems if the structure of the UK microelectronics industry were to change as a result of foreign competition.

Merely to be involved in high technology is no guarantee to viability, as the failure of the Nexos office systems project in Bristol has illustrated.

Drawing a cross-section of electronics and computing companies into the area is the prime objective of Councillor Claude Draper. As leader of Bristol City Council, and chairman of the Economic Development Board, he has a dual responsibility for attracting new business from the UK and overseas.

Draper emphasises the importance of Bristol as a commercial centre capable of supporting companies that the Development Office is attracting. "For a business to succeed in an area, it must be able to draw upon the support of banks and insurance companies, and find experienced clerical and administrative staff. This is where Bristol has distinct advantages over local development areas in South Wales."

With a policy of office development during the 1970s, Bristol attracted major insurance companies to the city: the strength of the financial community in the county is exceeded only by London and Edinburgh.

Land for factory development in the county is available from the local authorities, and from private industry releasing surplus sites. The Imperial Group, whose Wills tobacco subsidiaries are contracting, and the Rio Tinto Zinc Corporation provide the major sources of land in the private sector. British Gas and British Rail are among the public authorities with property surplus to requirements.

Serried ranks of factory units on a trading estate may be one solution to development, but can do little to stimulate the environment which encourages companies to establish long-term roots in a region. The Aztec West development in Patchway, at the M4/M5 junction to the north of Bristol, has been designed to overcome the inherent objections to factory estates. A commercial development on land assembled by North Avon District Council, Aztec West ("A-to-Z technology") is planned as 1.5 million sq.ft. of industrial and warehouse space and a further 500,000 sq.ft. of offices.

Guy Morton-Smith, development director of Aztec West, believes that the balance of industrial and commercial units will avoid a stereotyped trading estate image.

DEC is the first major computer supplier to take space at Aztec West, with a 24-year lease on 30,000 sq.ft. of office. The company has an option on a further unit of the same size to cope with expansion. Since Digital is planning to move its Bristol branch and service staff to the site, new business is not being brought to the area. Bristol development officer Mike West is confident, however, that the total "environment" package he can offer throughout the county will attract real investment and new job opportunities.

To the South-west of Avon, away from the established industrial environment, the prospects of attracting high technology investment rapidly fade. Journey times of road and rail travel increase out of proportion to the extra distance, adding to the real cost of production in the region. Tourism temporarily decreases the level of unemployment, but the labour force available to a prospective employer lacks the blend of industrial and commercial skills required.

A combination of SDA, DA and intermediate area status is the only attraction that Devon and Cornwall can offer the industrialist.

For a computer company considering a move to the South-west, the balance of incentives tips towards the County of Avon and its immediate environs: government finance should never be the prime consideration.

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1230	Lunch
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A contribution to: IT INFORMATION TECHNOLOGY 82

Public pension funds finance creation of jobs in Midlands

TWO years of recession have seen large scale redundancies within manufacturing industries outside the development areas. And the projected upturn in the economy will do little to assist the companies now laying off staff: massive capital injections are required to refurbish obsolescent plant and replace outmoded working practices.

In the West Midlands, for example, a streamlining of the motor industry has led to a sharp increase in the number without jobs: there are districts near Birmingham where the level of unemployment exceeds that in the problem areas of Scotland.

Unlike Scotland, Wales and the North-west of England, however, the West Midlands is not classified as a Special Development Area. Under the 1979 regional aid programme it does not even qualify for Intermediate Area status, the lowest grade of assistance.

Without the lure of 22% capital grants, periods of rent free "advance factory" accommodation and ready access to investment by Brussels, the whole of the West Midlands conurbation would be at a severe disadvantage when trying to attract new enterprise to the region. The prospects for the area would certainly be bleak were it not for an initiative taken by the West Midlands County Council and the metropolitan boroughs within its boundaries.

Central to the county's strategy for the regeneration of industry in the area is an Enterprise Board, a public sector venture capital organisation that has been established by the County Council.

Set up formally in February the board has as its prime responsibility the creation of new jobs by existing West Midlands firms. The idea is to identify companies with a long-term growth potential, but which could well fail because of current economic conditions, or because they are constrained by being part of a larger and perhaps less successful group of companies.

To the extent that the West Midland Enterprise Board is setting out to find firms in need of assistance, the project is no different from identical schemes operational elsewhere in the UK. Where the board is breaking new ground for a provincial authority is in its approach to funding. Some £8 million of finance from county rates will be augmented by upwards of £40 million from the council's pension funds. Additional finance will be raised from private pension fund managers who can be persuaded that such an investment would be in the interest of their members.

The role of the board is analogous to that of a merchant bank investing risk capital in a commercial venture – although the long-term objective is one of generating long-term capital growth rather than the steady rise in dividends normally required by the private sector.

Relative to the appetite of West Midlands industry for new capital, the funds at the disposal of the Enterprise Board will make little impression on the region's industrial infrastructure. But even this amount, without careful control, could be used to keep afloat companies for which there is no real future.

For that reason, the approach likely to be favoured by the board will be to take an equity interest in the firms it is assisting; maintaining the vital element of public accountability to the local authority and county pension funds.

While the members of the Enterprise Board are appointed by the County Council – with elected councillors inevitably in the majority – there have been appointments from industrialists and the trades unions. As the "professional" tier of the organisation, a permanent staff of between eight and ten (headed by a former investment executive from Northern Ireland) will liaise closely with the county's new Economic Development Unit.

This unit, whose task it is to work out the details of industrial strategy, will attempt to identify particular categories and size of business which will ensure a more stable pattern of employment in the county.

Three months on from vesting day for the Enterprise Board, the concept is only now crystallising into reality. A £500,000 budget for the period to April 1982 will grow to £3 million for the current year. The first investment decision has been taken: a loan which will convert to preference shares in the company.

An important factor is that 30 jobs will be saved by the move – one of the primary objectives of the board.

Since the proposals for the Enterprise Board were announced in autumn 1981, many applications have been received, but no action could be taken until an entity quite separate from the council had been created. With a unique form of investment involved, discussions with sources of capital have centred on the safeguards to be applied and the board's investment policy.

It is not clear at this stage whether the practice will be to spread investment over a large number of companies, or to limit the funds to a handful of firms. There would be no reason why the board could not take a majority shareholding in an organisation, acting as the nominee for the council and the pension funds. Subject to limitations on the involvement of the board in day-to-day management, the case would be stronger for concentrating the finance in a few carefully chosen companies.

Rarely is finance the only factor restricting the growth of a business, however: professional expertise is an equally valuable commodity. The board is proposing to make available the services of experienced industrialists where this would be the most appropriate form of aid.

Allowing firms to expand at a controlled rate would ensure that the correct industrial and employment structure can be developed for the area. Current levels of unemployment are undoubtedly excessive, but little would be gained by encouraging only those firms whose future is dependent on a short-term marketing potential.

Industries in which there is a high labour content involved in manufacturing, test and assembly offer perhaps the best hope for the West Midlands during the next decade. Recognising the importance of a technological base to the regeneration programme, Birmingham City Council is pioneering a Science Park in partnership with the University of Aston.

The project is centred on a 3½-acre site purchased by the City Council adjacent to the University. On half of the site, the existing factories are being retained as shell units for small firms. The buildings will not be divided into smaller units (from 500 to 10,000 square feet), until users have been identified. The emphasis will be on laboratory and office accommodation for high technology companies.

Computer resources will be available "on tap" to the site from the University, which will provide academic support facilities for the firms involved in the project.

For the Science Park to succeed, it must also be able to attract firms which want to build their own premises, but draw upon the University's resources. Half the present site for the centre will be cleared to allow independent development within the framework of the project.

There will be direct involvement by University staff in the companies on the site if required.

Reviving the shattered economy of the West Midlands will not be an easy task: the success of ventures like the Enterprise Board and the Science Park will not become apparent for a decade or more. But of all the regional aid schemes in the UK, these projects stand the greatest chance of success – because the driving force comes from within the community they serve.

Above all else, it is a question of self-interest.

Scots recovery hopes

● From page 17

Much of the skill in electronics that Wilkins hopes to draw upon is the product of earlier redundancies in electrical engineering. Employment is being taken up in the "professional" sector of electronics and computing (opto-electronics and microwave technology, for example), in contrast with Wales where the emphasis has been on the consumer end of the market.

For overseas companies moving to Scotland, the pool of trained labour is attractive: where such a firm brings its own staff, this is usually only for specialist assignments on short-term postings. UK companies will attempt to relocate their own staff wherever possible, but may face opposition from the workforce.

Once settled in Scotland, however, families enjoy being there, according to Wilkins.

Important though staff resources are to a company, accommodation of a suitable standard is a prerequisite for expansion. Both the SDA and the New Towns Development Corporation (Scotland has five designated towns) are involved in providing a range of factory types. At the most basic level, there are standardised "advance" factories which can be adapted to a company's specific needs.

Custom building may be necessary, as in the case of the DEC site at Ayr, where the factory was built to the company's specifications. In this essential area of accommodation, Britain is at a disadvantage relative to its competitors: the elaborate planning procedures involved in a major project may impose unacceptable delays.

As "estate agent" for the SDA, Locate in Scotland is in a position to offer sites throughout Central Scotland. The New Towns can provide comparable land for building within their own territory. When taken up by a company, these sites are often "advanced serviced" with roads, drains and main power services already installed.

By incorporating a higher percentage of office space in its new factory building programmes, the Agency is fine-tuning the structure of the business it attracts.

Wilkins identified the targets. "In terms of the thrust of development, the integrated circuit will remain crucial to the Scottish economy, but we are broadening out into sub-components and supplies. In Glenrothes, for example, we have a company making masks for the semiconductor industry."

Wilkins illustrated how computers are finding specialised applications in Scotland. "Banking and funds transfer has proved a growth area, with companies such as Fortronics, Burroughs and NCR.

"Scottish banks have progressed further in this direction than their English counterparts," he added.

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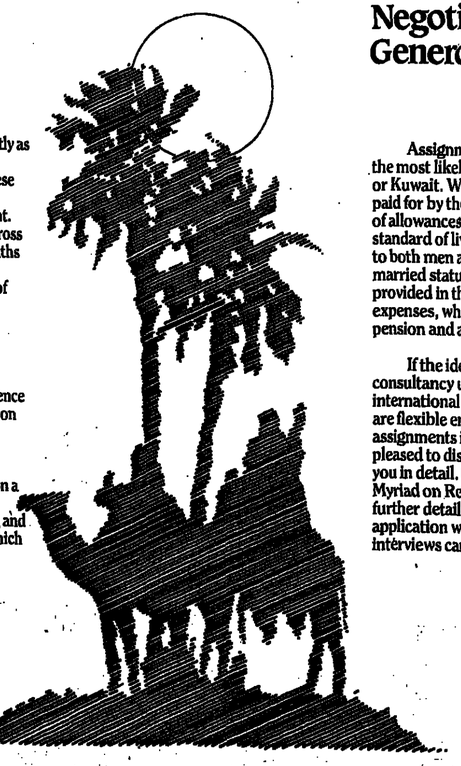

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The plans are to replace the 4300s with a new generation IBM 3080 series machine and transfer all systems to MVS/IMS.

Word-processing equipment is Philips 5002/3 and Data General Eclipse minis are in use for interactive scientific and technical applications. A CASE MSX II message switch processes telex messagex around the world. An IBM 3750 computerised telephone exchange is installed in London and two Plessey PDX exchanges are in other locations.

to £9,500

COBOL Programmers are needed at varying levels of seniority with a minimum requirement of two years IBM experience on either OS or DOS systems. Knowledge of structured programming techniques, IMS databases or CICS would be a distinct advantage.
Successful candidates will join one of several major new projects under development and they will also assist in the support of production systems.
After a period of familiarisation, the senior positions also offer responsibility of leading a small programming team.

to £13,000

The successful applicants will join a team of systems programmers supporting the existing software which includes DOS/VSE, VM/CMS, CICS, DL/1, SNA, VTAM, RAMIS II, etc., and evaluating/implementing new packages for the U.K. and six other European countries. Candidates should therefore be prepared for some foreign travel.
When the IBM 3080 arrives, all systems will be converted to MVS and therefore full training will be provided in the intervening period, making this an ideal opportunity for DOS Systems Programmers to expand their skills. The U.K. use of the machine in Germany is currently supported by the technical group in London.

to £13,000

With a high level of user contact, these outstanding career opportunities are available for people with four to six years previous computing experience, a solid COBOL programming background and who have moved into an analysis and design role.
The persons appointed will be responsible for all aspects of major project development from specification to implementation. Previous experience of IMS and/or CICS would be a distinct advantage.

to £14,000

Texaco wishes to appoint two people with experience in designing and implementing database systems and at least one must have a sound technical knowledge of either IMS or CICS/DL1. They will operate in a small team and their main activities will be:
– development and introduction of standards
– database design and implementation
– assuring security and integrity
– application development support
– performance monitoring and tuning
– education in database techniques and data dictionary

All employees are covered by a benefits package commensurate with other major oil companies (contributory pension scheme, 35 hour week, £1.85 per day LVs, etc) and their offices are located close to Knightsbridge underground station and to Hyde Park.

For further information and to arrange an early interview, please contact our consultants, Myriad Appointments, at their London office (01-353 0981).

Myriad Appointments Limited

30 Fleet Street, London EC4Y 1AA Telephone: 01-353 0981 24 hours
50a London Street, Reading, Berkshire RG1 4SQ Telephone: Reading (0734) 585802 24 hours

Guardian Royal Exchange Assurance

LYTHAM ST. ANNES

Set in pleasant surroundings in a modern office block, the computer centre is the hub of all the company's Data Processing operations. One of the country's leading insurance groups, we are involved in a wide spectrum of advanced project development and offer job security together with first class working conditions, facilities and prospects. Our present equipment includes an IBM 3032 and an AS9000 with which we use IMS/VS extensively, running under MVS. We also have an increasing number of IBM 8100 machines. There is a major commitment to expanding our distributed processing systems using the latest techniques available.

Application Programmers and Junior Application Programmers

to £8477+ attractive benefits

To join existing project teams developing a wide variety of mainframe and minicomputer systems. Only programmers with a minimum of 15 months' practical experience need apply. The major language used for application development is PL/I, though other languages are used in our work on the IBM 8100 series. We are prepared to re-train successful candidates using comprehensive training facilities including the latest multi-media techniques. Programs are developed using modular and structured programming techniques and TSO/SPF.

Systems Analysts

to £10713+ attractive benefits

To join project teams developing a wide variety of applications using the latest techniques including database and teleprocessing. The ability to deal with users on the one hand and experienced programmers on the other means that the successful candidates will enjoy a high level of involvement and will need to display a professional approach in a professional environment with at least two years' proven practical experience.

Being a large installation heavily involved with database operations and currently developing large scale distributed processing networks, we offer many opportunities for career advancement in programming, system analysis or software specialisation.
Progress is reviewed regularly and promotion to senior grades is based solely on merit. Salary scales exceed £12,000 for the more senior analysis and programming personnel.

Benefits include 1 Mortgage facilities at low interest rates and relocation expenses (in approved cases) • Flexible working hours • Paid overtime • Security of permanent employment in a long term career with good promotion prospects • Non-contributory pension, widow's pension and life assurance schemes • Excellent sports and social facilities • Easy access to the Lake District, North Wales and Yorkshire Dales.

Are you interested? If so ring me (reverse charges) between 5 p.m and 8 p.m. Monday to Friday (till Friday 11th June) or write giving career details to:
Ian A. Lucy, Data Processing Department
Guardian Royal Exchange Assurance Limited
Hallam Road, Lytham St. Anne's, Lancashire FY8 4JZ
Telephone Lytham (0253) 738701

Systems Engineer

Our Client, an International Company, with a plant located in South Wales, has a vacancy for a Systems Engineer to work on a positive and aggressive Manufacturing Systems plan including applications such as Process Management and Laboratory Information Systems.
The successful candidate will hold a degree in Engineering or Computer Science and have at least 2-3 years experience on Hewlett-Packard 1000 series computers, using Fortran, RTE1VB and IMAGE Database, or similar hardware/software exposure.
He/she will be responsible for evaluation, design and implementation of equipment, software and instrumentation relating to computer monitoring, control and data acquisition.
The ability to think logically and clearly present information both in writing and by means of formal presentations is essential.
The Company offers a competitive salary, linked to an incremental based plan, together with a non-contributory pension and life insurance scheme. Generous relocation expenses are available, where appropriate.
Please write giving full details of experience to: Siobhan Holland, Riley Advertising (Southern) Limited, Europa House, Queens Road, Bristol BS8 1AG. Please list separately any companies to whom you do not wish your application to be sent.

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GLASGOW LIVERPOOL MANCHESTER
NEWCASTLE NOTTINGHAM PERTH
(9767)

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SOFTWARE ENGINEERS

An expanding sub-division of an International Professional Company specialising in Process Control for Power Station Computer Systems and Energy Management Control Systems seek additional engineers for permanent career in Software Development.

Based in Switzerland, successful candidates will be required to take full responsibility for all stages of development from design through to implementation in these English speaking projects.

Broadly speaking, we are looking for candidates to concentrate on establishing new Standard Software and who will more than likely have worked with or have an interest in most of the following: Modern Real Time Software, Computer Networks, Man Machine Communications, Multi CPUs Systems.

Candidates should have a high academic background and experience of most of the following: Real Time Software, Process Control, ASSEMBLER, PASCAL, FORTRAN, PDP11, RSX11 and VAX 780s. Some candidates may be called upon to travel worldwide for short term commissioning purposes.

Successful candidates may look forward to enhancing their career prospects, gaining valuable experience in an international environment.

Interviews will take place in London or the Continent in early July. For immediate consideration, please send a copy of your CV or telephone for further details and/or an application form.

CW22

(9804)

Creative Software Professionals

Manchester

We have vacancies for creative Software Professionals for the research, specification and development of application independent software products.

Interest and experience in the design or implementation in one or more of the following areas is essential:
- Data Dictionary Systems
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The posts offer the opportunity to make a contribution to a successful software operation. Attractive salaries for expertise and experience. Interested? Think you meet our requirements?

Please write with full career details to the
Personnel Manager, The National Computing Centre Ltd., Oxford Road, Manchester M1 7ED,
or telephone 061 228 6333 for application form.

NCC
The National Computing Centre
(9782)

University of London Computer Centre

Systems Integration

The University of London Computer Centre provides a National Computer Service to universities throughout the country. The Centre is equipped with Control Data 7600, 6600, 6400 and Cyber 72 computers and has recently installed a 16 Mbyte Amdahl 470/V8 processor. A CRAY 1S processor will be installed in 1983 and can already be accessed at a separate location. A new Network Communications System is under development to support a large network of remote batch and keyboard terminals with access to other public and private networks. The Centre has adopted the X25, Triple X, FTP and JTMP communications standards.

The Centre wishes to recruit a Systems Programmer with at least 2 years' experience in programming on either large or mini computers. The successful applicant will join a team of systems programmers working on Systems Integration within the Operating Systems Department. Duties will include integration and testing methods and monitoring the reliability of the running production systems.

Candidates with knowledge and/or interest in testing and maintaining Network Communications Systems software will be preferred.

Academic qualifications to degree level will be required.

Salary commensurate with age, relevant qualifications and experience will be in the range £8070 to £10575 (under review) plus £1035 London Allowance.

Further details and application forms are available from the Assistant Secretary, ULCC Guilford Street, London WC1N 1DZ. Telephone 01-405 8400, extension 341.

Applications close three weeks from the date of this advertisement.

(9769)

SYSTEMS PROGRAMMER

£10,443 – £11,496 p.a. inc.

We require an experienced Systems Programmer to help our Software Support and Systems Administrative facilities. He/she will have responsibility for a staff of three for the installation and maintenance of all software and for the Systems Administration and Network Control functions.

Currently installed is a 4MB 4341 running VM, VSE-AF2, CICS, VSAM, APL, ADI, ADRS, BASIC and will shortly be moving into a VTAM/SNA environment.

If you can demonstrate experience in any or all of the above coupled with a strong Assembler background we would like to hear from you.

Fringe benefits include a subsidised restaurant, staff sports and social club and interest free season ticket loan facilities.

For informal enquiries please contact Nigel Trott on 01-937-5464 Ext. 575.

The Royal Borough of KENSINGTON AND CHELSEA

Application forms quoting Ref. CW/639 obtainable by postcard only from the Personnel Service, The Town Hall, Hornton Street, W8 7NX. Closing date for application 16th June 1982.

Applications are welcome from suitably qualified disabled persons.

Shubrookes

UNDERSTAND CONTRACTORS

The following programming skills are required urgently for locations in London and the South of England.

IBM PL/1
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IBM MVS SYSTEMS PROGRAMMERS

PLEASE CONTACT IMMEDIATELY:
Eric Oldham, Almners Priory, Almners Road, Lyne, Nr. Chertsey, Surrey. KT16 0BH.
CHERTSEY (09328) 66812

(9774)

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to join a team teaching full-time and part-time students on BEC/TEC Diplomas, NCC and GCE courses, and short courses for industry and commerce. Appropriate qualifications, and for the Grade II post substantial industrial/commercial experience in computing, are essential. Salary according to qualifications and experience within the range

Grade I £5034-£6858
Grade II £6462-£10,431

both plus April 1982 award (around 6%). Details (send sae) from Principal. Completed forms to be returned as soon as possible.

(9783)

D.P. MANAGER

I.B.M. Computer D.P. Manager required, for newly installed System 34 in a developing Wholesale Meat Company.

Please apply in writing, to Mr. M. Vignali, Trust Meat Company Ltd., 394 Camden Road, London N7,with particulars of experience and expected salary.

(9776)

SUPPORT ENGINEER

Tandon International require a Support Engineer based in Reading to assist and advise their distributor and large O.E.M. Dealers throughout Europe.

The successful candidate should have a good knowledge of Hard and Floppy Disk Technology and an ability to discuss controller problems.

Benefits include salary £11,000 to be reviewed in 6 months + Car + 5 weeks holiday.

Please send C.V. to:

RON HALE

BOX NO. 1205

Tandon

(9688)

Surrey Education Committee
BROOKLANDS TECHNICAL COLLEGE
Heath Road, Weybridge, Surrey

DEPARTMENT OF TECHNOLOGY

Lecturer I – Computing

to teach BEC/TEC, GCE 'A' level and similar courses to appropriate qualifications and experience to teach DP and Cobol required.

Salary Scale (under review): Lecturer I – £5034-£6858 p.a. plus £213 per annum London Fringe Area Allowance.

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Generous relocation expenses in approved cases.

Further details and application form from the Principal to be returned by MONDAY, 14TH JUNE, 1982.

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computing centre manager

We are searching for a Computing Centre Manager for a new, recently established research facility of Schlumberger Drilling and Production Services. The new research division, Schlumberger Cambridge Research, has been formed to inject high level scientific research into areas which are still largely viewed as an art. Schlumberger Cambridge Research, therefore, consists of a very high level team of Research Scientists who are carrying out advanced experimental, analytical and numerical investigations.

The Computing Centre Manager will be responsible for setting up a new Computer Centre which will be the core of the new facility. The initial task will be to supervise the installation of a VAX11-780. Other tasks will include co-ordination with other computing centres in the group to ensure, in particular, software compatability; recommend hardware and software extensions to meet growing needs, (word processing and electronic filing, graphics, CAD, computer to computer communications, data acquisition and control). The Manager will also be expected to promote Computer technology in a world of scientists.

Candidates must have previous experience with VAX11-780, be a good organiser and communicator as well as having a wide knowledge of hardware.

The company has a very positive attitude towards remuneration, therefore, the salary will reflect the importance attached to this role. This appointment is based in Cambridge.

To apply, in the first instance, either send a curriculum vitae or phone for an application form quoting reference CCM. Please address your reply to Geoffrey King, Managing Director of Cambridge recruitment, who is advising the company on this appointment. The position is open to both men and women.

Schlumberger SCHLUMBERGER CAMBRIDGE RESEARCH

Cambridge Recruitment Consultants
1a Rose Crescent, Cambridge CB2 3LL. Telephone: 0223 311316.

EUROPEAN INSTITUTE OF BUSINESS ADMINISTRATION (INSEAD)

Seeking experienced Freelance COBOL Programmer in Fontainebleau, France for 6-12 month contract. P 1000 P/M.

Write or Telephone for Details:—
A. Nassim (Computer Manager).
INSEAD,
Boulevard De Constance,
77305 Fontainebleau,
France.
Phone 010.33.6.422.48.27

Interviews, LONDON – Middle of June. 9700

BOX NUMBERS

Box number replies should be addressed to:

Box Number.....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

Targa

CHIEF PROGRAMMER

NW LONDON — To £12,500
Due to a major expansion programme, and installation of IBM System 34's in each of its factory locations this leading company in the electrical industry is looking for a Chief Programmer. Substantial RPG II experience and familiarity with IBM SYSTEM/34 software and utilities are required; also a knowledge of Cobol would be advantageous. The role involves providing technical advice where necessary, and responsibility for the maintenance of all software.
Ref: S3878

ANALYSTS & PROGRAMMERS

SURREY — £NEG+MORTGAGE
A Nationally renowned Insurance company is looking for further Systems Analysts and Programmers to enhance its development teams, using large ICL 2900 machines. Ideally the Systems Analyst should have 2 to 3 years experience, with exposure to Database Systems, good experience of systems design in Financial or Management Information Systems and a COBOL background. The Programmer requirement is for persons with a minimum of 2 years ICL COBOL experience utilized within a VME or DME environment, working with financial applications. Salaries are negotiable and relative to experience and all positions attract a generous benefits package which includes MORTGAGE SUBSIDY.
Ref: C3888

ANALYSTS

CITY — To £11,000+MORTGAGE
Our clients, a leading city-based Insurance Group, is seeking two further Systems Analysts to play major roles in their imminent Development projects. They require two people with a good ICL Cobol background capped by at least 1 or 2 years formal analysis work. Experience in financial or commercial applications is desirable and some Insurance exposure would be particularly welcome. Our client would be very interested in talking to persons who match these requirements and in exceptional circumstances an even more generous salary and benefits package could be offered.
Ref: C3698

ANALYST/PROGRAMMER

CITY — To £11,000+MORTGAGE
Expansion of a major international Bank's EDP team affords an exciting opportunity for Analyst/Programmers with 2-3 years experience in banking, financial or commercial applications. The work involves implementation and development of systems, both in the UK and abroad on PDP11 and VAX machines, therefore a background which includes Basic, Cobol or a similar type language working with large MINI computers is desirable.
Ref: C3914

PROGRAMMERS

SURREY — £7,000-£10,000+MORTGAGE
Our client is a well established financial institution based in Surrey. Due to major development work now being undertaken they wish to recruit bright young PL/1 programmers to their team. The position would be ideal for candidates with 1-2 years experience, perhaps seeking their first change as there are excellent chances of promotion coupled with a benefits package which includes MORTGAGE facilities.
Ref: R3877

PROGRAMMER

C LONDON — c.£9,000+MORTGAGE
Around 2 years IBM Cobol may give you an opportunity with a leading European bank to be trained in CICS and DL/1. Whilst exposure to this or similar software in a banking or financial environment would be useful, the main criteria are considered to be personality and attitude. An excellent range of banking benefits, including MORTGAGE is offered.
Ref: R3943

JUNIOR ANALYST

CITY — £9,000-£10,000+MORTGAGE
A major British bank have an opening which could provide the first step into a full Analysis role. Some analysis experience is required probably gained in an IBM environment as an Analyst/Programmer. The company have some exciting development plans which together with a significant hardware upgrade offers a challenging and rewarding opportunity. All the usual banking benefits, including MORTGAGE are available.
Ref: R3733

ANALYST/PROGRAMMER

CITY — c.£10,000
An Analyst/Programmer is required by a leading city based bureau, dealing mainly with financial/banking applications. They are looking for confidence, ambition and an IBM GSD background, utilising RPG II and III. Good potential for progression to S38 and into Systems Analysis is offered for the selected candidate. So, if you have 2-3 years RPG experience and would like to be involved in the development of bureau applications in a progressive company, please contact us immediately.
Ref: S3947

ANALYST/PROGRAMMERS

N LONDON — c.£9,000
A leading engineering company are looking for 2 Analyst/Programmers with an IBM SYSTEM 34 or 38 background. An experienced RPG II or III programmer who would like to move towards Systems Analysis, would be ideal. Excellent promotional prospects are offered, and a package including annual bonus and non-contributory pension is available.
Ref: S3933

PROGRAMMER/ANALYST

CITY — c.£9,000
This BANK in Central London is looking for a Programmer/Analyst with approximately 18 months to 3 years experience in an IBM GSD environment utilising RPG II and III. The selected candidate will be required to work abroad for 10-12 weeks of the year and will receive an attractive "Banking" package, which includes a generous mortgage subsidy. A high standard of education (preferably degree) is required, and experience of banking applications advantageous.
Ref: S3924

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Building Society

We operate an ICL 2972 running VME/B. We have over 300 branches, half of which are equipped with terminals on-line to the mainframe at Leek. We plan to extend this system to all branches and to re-appraise all our applications software.

SYSTEMS ANALYST
up to £10,186 plus benefits

The Computer Systems Department is responsible for the analysis, design, testing, implementation and maintenance of all mainframe systems.

The person appointed will be in a small team of analysts under a project leader and will be expected to be able to work both as a member of a team sharing large projects and independently on small projects.

Candidates must be able to demonstrate that they have seen projects through all the stages above and are able to communicate effectively with all levels of staff both verbally and in writing. Experience of VME/B is an advantage but is not essential.

TECHNICAL SUPPORT PROGRAMMER
up to £8,745 plus benefits

Technical Support is responsible for the VME/B base and associated software. It is also responsible for TP and for the performance of BATCH and MAC work.

The site is currently running on 6.14 and the immediate future will see the move to Release 7, implementation of New York Management and the addition of FDS840s prior to the expansion of the TP system.

The person appointed will join a team of 4 people. Applicants should have experience of VME/B and a knowledge of TPMS. Performance monitoring on new work would be an advantage.

In addition to the annual salary there is an attractive package of fringe benefits. Application forms are available from Mr. Ray G. Hewson, Assistant General Manager (Personnel and Administration), Britannia Building Society, P.O. Box 20, Newton House, Leek, Staffs., ST13 5NQ, or telephone Leek (0538) 385131, Ext. 18.

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BDS, a leading supplier of computer peripherals specialising in printer systems, have a vacancy for a Managing Director of Corporate Operations to accelerate growth within the U.K. and Western Europe.

The candidate must be able to demonstrate a successful marketing background with total responsibility for full financial control.

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Please write with c.v. to:

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Our Company has a commitment to personal development and training and can offer an attactive remuneration package including a competitive salary, Company car where applicable and those other benefits associated with a successful organisation.

Please write or telephone to: Candy Ward, Cable and Wireless UK Services Limited, 83 Blackfriars Road, London SE1. Tel No. 01-633 9677.

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BANK

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International Bank requires Programmers and Programmer/Analysts who are willing if necessary to relocate outside London.

Candidates must have a minimum of 3 years programming experience on mini-computers, preferably DEC PDP, programming in AIMS, BASIC+ and/or COBOL. For the Programmer/Analyst positions, practical analysis and design experience is essential, and some knowledge of staff supervision gained in a financial environment.

Applicants should also be prepared to travel throughout both the United Kingdom and Overseas.

SECRETARIAL

INTERNATIONAL BANK JUNIOR PROGRAMMER/ ANALYST

c. £9,000

Prestigious City-based Bank seeks a Programmer/Analyst aged approximately 25 and with previous NCR & COBOL programming experience. Ideally the candidate will have gained his knowledge of Data Processing in banking, or financial applications.

For this post the candidate will need to be a conscientious and enthusiastic worker.

We have many more Data Processing vacancies both at senior and junior level, therefore, for more information about the above appointments and others, please contact BEVERLY COLLINS ON 01-236 7961.

(8776)

David Grove Associates 60 Cheapside London EC2V 6AX Tel: 01-248 1858

SOFTWARE PROJECT LEADER

c £10,500 p.a.

SOFTWARE ENGINEERS

c £9,000 p.a.

Westinghouse Signals, a member of the Hawker Siddeley Group, is responsible for the complete design, manufacture, installation and commissioning of Railway Signalling Control Systems in the UK and overseas. As part of the Company development we are now looking for the following.

Software Project Leader

Required for our Software Development Department. All software being developed is for real-time control systems based on a variety of micros and minis. This includes the most exacting field of safety systems.

The ideal candidate will be educated to degree level and will have a sound background using high and low level languages for real-time applications. Experience of project control, estimation and the production of specification and documentation to a high standard is considered important.

Software Engineers

Qualified Engineers with experience of software for A.T.E. are required for development of both hardware and software for a range of computer based test equipments, including printed circuit card testing.

Applicants should have at least 2 years relevant experience. Familiarity with HPL and BTL as used on the HP3060 could be advantageous.

Successful candidates (male or female) will be offered salaries negotiable around the stated figures and an attractive relocation package where appropriate.

Interested applicants should write giving full career details to: Miss F. T. Cox, Personnel Officer, Westinghouse Signals, PO Box 79, Foundry Lane, Chippenham, Wilts. Telephone (0249) 4141, extension 700.

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SENIOR PROJECT LEADERS IBM/ICL, Manufacturing	to £12K Wales/Surrey/Bucks
PRE/POST SALES SUPPORT Minis/Realtime/Cad/Cam	to £12K Berks/Middx/London
SENIOR SYSTEMS PROGRAMMERS DOS/CICS/Teleprocessing	to £13K Midlands/London/Home Counties
SYSTEMS ANALYST IBM SY.34 RPGII exp.	to 12K Bucks
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ABU DHABI MARINE OPERATING COMPANY
DATA PROCESSING OPPORTUNITIES

ABU DHABI

We are a leading oil-producing company operating in offshore areas of Abu Dhabi, United Arab Emirates. We have a twin ICL 2900 mainframe configuration and are in the process of moving from a DME to a VME operating environment utilising TPMS and IDMS software for development of major applications.

The configuration supports ICL front end processors with a large and expanding network of terminals centrally controlled by a Racal System 185.

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Operations Analysts and Shift Technologists
Communications Coordinators

Benefits include a high tax-free remuneration, good career prospects, free medical care in the UAE, free furnished family accommodation, paid home leave for the family and educational assistance.

Candidates are invited to apply in English giving full details of education, training and experience supported by copies of relevant certificates separately to both the following addresses, not later than three weeks from the date of publication:

1. Senior Personnel Officer (CPA) P.O. Box 303 Abu Dhabi, U.A.E.
2. Department of Petroleum P.O. Box 9 Abu Dhabi, U.A.E.

Knowledge of Arabic will be an advantage. Any applications which fail to comply with the above will be disregarded.

(9760)

FIELD SERVICE

Field/Support Engineers – N. London – Major American chip manufacturer offers unique opportunity to expand career in top end of Micro Market training – real career opps. – car choice + Base Salary £9.5K +++

Field Engineers – Oxford, Middx, Basingstoke – Leading Mini manufacturer seeks enthusiastic Engineers to join in dynamic growth of company and advance career forefront of technology – £8.5K + O/T + S/B + Car choice + BUPA, etc.

Workshop Supervisors – Micros – Set up and run workshop facilities for two companies with growing teams – £9k + Car + prospects +++

Opportunities also in Southampton, Leeds, Scotland, Manchester, and other areas.

Call Keith Wallis and discuss these and many similar opportunities.

01-543 4844
ALLTRONICS PEOPLE

POLYTECHNIC OF THE SOUTH BANK
Borough Road, London SE1 0AA

Senior Lecturer/ Lecturer, Grade II

in

Department of Accountancy, Finance and Information Studies
(Ref: AF4)

Applications are invited for the post of Senior Lecturer/Lecturer, Grade II in Data Processing and Systems Analysis in the School of Quantitative Studies to teach on business studies, management and accounting courses at degree and diploma level.

Recent practical experience in industry or Commerce is essential and some teaching experience is desirable.

Salary will be in the range:
Senior Lecturer £10,383-£12,097 (bar) £12,900, inclusive of London Allowance

Lecturer, Grade II £7,221-£11,190, inclusive of London Allowance

Further particulars and application form from the Staffing Office Tel: 01-928 8989 ext. 2355.

Closing date for receipt of completed application forms will be 1st July, 1982.

(9800)

Hodge Appointments

CAD/CAM ACCOUNTS MANAGERS

£12,000-£15,000 Basic on target £23,000+

Major CAD/CAM systems manufacturer requires sales professionals for 3 distinct areas – microelectronics; mechanical products; architecture, engineering and construction. Their products are sited in universities, scientific laboratories, military and government installations. A sound sales record plus background and experience of selling into CAD applications preferred. Full relocation expenses and many attractive employee benefits. Southern Home Counties to cover UK/ Scandinavia/Holland

MINI/MAINFRAMES

to £12,000 + guarantee £24,000 on target

Career opportunities have arisen for highly successful sales executives to sell a series of advanced multi-terminal D.P. systems. Previous network management experience is a main criteria, plus a positive approach to selling and an ability to handle specialised applications. The company offers a highly competitive commission structure and career progression.

London Home Counties

01-491 7638 (01-764 6772 24 hrs)

Interviews are being conducted at our Bond Street Office. For an appointment contact Beverley Clark and Carmel Rowley, Bond Street, W1.

CONTRACT

THROUGHOUT THE UK AND EUROPE

We pay the BEST RATES for the BEST PEOPLE!

A selection of current requirements:

DESIGNERS and PROGRAMMERS

for

PDP11 RSX11M CORAL 66, MACRO 11
VAX VMF RTL/2 OR FORTRAN
Z80/INTEL 8080 ASSEMBLER
PDP11 RSX11D ASSEMBLER
PDP11 RSX11M RTL/2
ARGUS 700 CORAL 66
PDP11 PASCAL

SEL 32 FORTRAN, Rapport, Colour Graphic
HP3000 FORTRAN Financial Modelling
FORTRAN Resource Planning
PDP11 Total Stock Control
PL/1, Assembler and CICS
PL/1, Assembler
COBOL IMS
MK. IV

Also

DIGITAL HARDWARE ENGINEERS

This is a selection from our list of current requirements and we have many more assignments in the Real-Time Mini and Micro field during the next few months.

We are particularly interested in hearing from experienced and "First-Time" contractors wishing to work in the NORTH OF ENGLAND, where R.T.C. is soon to open a regional office.

£26K to SAUDI £37K

We have requirements throughout 1982 for IBM Consultants (at all levels) with experience of: PL/1, MKIV, IMS DB/DC, TSO/SPF and JCL for assignments in Saudi Arabia and the UK.

To register your interest, phone BEVERLEY or JANET on 021-622 6181/2.

(9766)

REAL TIME CONSULTANTS
Monaco House, Bristol Street
Birmingham B5 7AS
Telephone 021-622 6181 2 or 622 3040 (24 hrs)

logistix Logistix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

LAN Support & Development

Thames Valley: Salaries to £12K

Communications Software Analysts and Designers, who have been primarily involved in Research and Development but are now seeking more customer contact, are urgently required by our clients. Candidates should have been employed in a mini- or micro-based distributed processing environment for at least two years where their role has encompassed Systems Design and Programming. Software skills should include fluency in an Assembler and a high-level, block structured language. There will be initial product training at the Company's U.K. headquarters where successful applicants will become familiar with both the design concepts and the applications area of a broadband-based LAN. Subsequently the majority of time will be spent assisting clients in the tailoring of the system to particular applications areas. **Ref: L/22/A**

Navigation Systems

Inner London & Home Counties: Salary to £12K

A highly regarded supplier of precision instruments and electronic devices is seeking several **Software Development Engineers** for either its Central London support facility or its Thames Valley-based Research & Development Laboratory. Suitable applicants must be numerate graduates who are currently involved in the design and development of microprocessor-based control systems. Practical programming skills must include total fluency in one or more of: Pascal, Fortran or Macro 11. Candidates should have the ability to resolve complex software problems for end users demanding total reliability or where operating conditions are not necessarily conducive to high technology products. For certain positions you should have project team leadership aspirations which will reflect in the salary offered. **Ref: L/22/B**

Real-Time Computing

Netherlands: Salaries to £15K

On behalf of an expanding Systems Supplier and Consultancy, we are seeking a number of **Software Programmers and Applications Engineers** for permanent career positions in the Netherlands. Candidates should hold a numerate degree and have at least one year's post-university experience. Software programming expertise should include fluency in a high level language such as RTL 2, PASCAL or ADA with preferably a working knowledge of an Assembler language as a subsidiary skill. Of particular interest will be those who have participated in the development of a PDP or VAX based real-time system or, alternatively have utilised a 32-bit mini-computer as a software development tool. **Ref: L/22/C**

Pascal Programmers

N. Home Counties: Salaries to £10K

The Research and Development division of a leading multinational corporation requires a number of Programmers to assist in the development of both Applications and Systems Software. All respondents should possess a degree or H.N.C. in a relevant discipline followed by at least two years in industry. A minimum of one year's development experience on either Intel 8080/85 or Z80 based systems, preferably running under CP/M or UNIX is essential as is fluency in Pascal. A knowledge of protocolling techniques and an Assembler language are useful supplementary skills and will attract a salary premium. **Ref: L/22/D**

C + UNIX Designers

Greater London: Salaries to £11K

An internationally recognised supplier of Hardware and Software Systems plans to introduce a new product line based around the 'C' programming language and running under UNIX. Suitable respondents should hold a numerate degree and be fluent in an Assembler language and at least one high level language, preferably C or Pascal. Of additional interest will be those who have current involvement in a systems development role on any leading 8- or 16-bit microprocessor. Whilst the majority of development work is obviously conducted in-house, a degree of mobility is essential for client visits during implementation and subsequent sales support. **Ref: L/22/E**

Assembler Programmers

Essex: Pkg to £12K + Relocation

A leading British financial institution with offices in rural Essex is currently seeking additional **Assembler Programmers** for its recently installed distributed processing system. Applicants should offer a minimum of 18 months' Assembler programming experience preferably gained in a financially orientated real-time mini-computer or mainframe environment. Particular hardware is not important, as the client offers excellent in-house training. However, for the more senior position of Lead Programmer, applicants must offer some knowledge of IBM mainframes, TP systems, IMS and/or structured programming techniques. These positions represent outstanding career opportunities and if you demonstrate potential, you will be able to progress rapidly into either systems analysis or management. There is an excellent relocation package for applicants not resident in the Essex area. **Ref: L/22/F**

Micro Design Engineers

Thames Valley: Salaries to £10K

A number of **Microprocessor Design and Development Engineers** are sought by a leading microcomputer and semi-conductor manufacturer. As there are a considerable number of positions available, the variety of skills required is, necessarily, diverse. However experience in one or more of the following areas is essential; customisation of Operating Systems such as CP/M or MP/M, with a salary premium attached to knowledge of a networking O.S; compiler and cross-compiler development particularly if utilising PASCAL or C; familiarity with a leading MDS and, also, experience in the design and production of interface hardware and software. A degree of customer contact is a feature of most of these positions and, therefore, an outgoing personality and good communications skills are required. **Ref: L/22/G**

Product Marketing

Central London: Salary to £17K + Car

A leading supplier of Hardware and Software Systems has an immediate requirement for several **Product Marketing Engineers and Consultants** for its Central London headquarters. Candidates, aged 28-35 years, should have current or very recent experience in a similar role preferably within a supplier of Commodity, Banking or Insurance orientated systems. Preference will be given to candidates who have experience of the majority of the following work areas: marketing studies, product appraisal and planning, mailing and canvas "shots", seminar presentation, product demonstration, public relations and lecturing to customers' staff. Whilst generally you will be working at our client's premises, these positions will entail a degree of national travel. **Ref: L/22/H**

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(9764)

California

assignments for 8 analyst-programmers
circa $35k p.a. (circa £19k)

- start in 2 months – more than enough time to make all the best arrangements; booked holidays need not present a problem.
- Cobol and solid IMS DB/DC experience required, combined with energy and initiative for these challenging team positions.
- sunshine location 5 miles from the Pacific; all the benefits of a country location with quick and easy access to central L.A.
- professionally run DP department of high-tech corporation; 4300 under MVS runs terminal network throughout USA.
- very attractive accommodation available, excellent amenities – surfing, sailing, tennis etc.
- our salaries in the region of $35k p.a., combined with our comprehensive, well-proven US relocation package and the significant tax concessions make for an excellent standard of living in the US's most exciting state.

Phone TODAY for a rapid assessment and interview: our American clients are in England with us on 21st June. If you have a c.v., mail it today and PHONE as well. Reverse charges accepted during working hours; 24 hour answering service; interviews in London, Croydon, Birmingham and Manchester. Computer People International, VLI House, 68-69 St. Martin's Lane, London WC2N 4JS.

01-836 8411.

Computer People International

Rural Worcestershire

If you enjoy being at the centre of things...

MVS

We are the Group Control and Communications Centre responsible for providing the facilities and know how behind some of the most ambitious information and control systems in Europe.

New multi million pound systems projects for the 80's are evidence of our commitment to a multiple IBM Mainframe service and in particular the refinement and enhancement of MVS.

We would like to meet with an experienced Systems Programmer who combines a solid grounding in MVS support with the creativity and skill vital to a demanding and professional organisation.

Our activities in multi-access technology Database and Communications, guarantee your on-going career development.

An attractive salary and superb benefits package including a Company Car, Bonus Scheme and generous relocation expenses, round off a first class opportunity in a glorious rural location.

For more information on this opportunity, please contact our Advising Consultant, **Alan Carnell** on **021-236 3781** (24 hour service) or Evenings and Weekends to 9.00 pm 01-891 1555. Alternatively, please submit a comprehensive C.V. to our Birmingham offices.

Technical, Sales & Management Appointments

SCR

Specialist Computer Recruitment Ltd

SOUTH: James House, 46 James Street, London W1M 5HS, 01-935 0671/486 0481
MIDLANDS & INTERNATIONAL: 35-37 Great Charles Street, Queensway, Birmingham B3 3JY, 021-236 3781
NORTH: Blackfriars House, The Parsonage, Manchester M3 2JA, 061-833 0427
BELGIUM: Avenue Louise 327, Boite 4, 1050 Bruxelles, 010 322-640 7151/71
HOLLAND: Willemsparkweg 62, 1071 ILM Amsterdam, 010 3120-760947

New York Banking

Manufacturers Hanover Trust Company is the fourth largest American bank, with headquarters in New York and facilities in 40 countries world-wide. The company is at the forefront of the movement from traditional banking methodology to newer, more sophisticated techniques. We operate a structured career development policy, fulfilling all relevant training needs, so that progression may be via both technical and managerial paths. We now wish to expand our DP department by offering permanent positions to DP professionals from the UK which, in addition to the starting salaries indicated, carry substantial banking benefits.

As the environment is primarily IBM, we are particularly interested in hearing from those with experience of: ★ On-line OS or DOS COBOL and ASSEMBLER languages ★ IMS or CICS and DL/1.

In London we have a department whose sole responsibility is to recruit for the New York office, answer any questions you may have, process all visa applications, assist with relocation and generally help and advise. Brief descriptions of some of the positions available are given below.

Senior Systems Analysts
to c.$35,400

We are looking for the full range of analytical and design skills, ideally coupled with a programming background.

Systems Analysts
to c.$28,800

Previous experience as a programmer is required, plus familiarity with the techniques of systems analysis, systems design, file design and data access techniques.

Senior Programmer/Analysts
to c.$35,400

The main responsibility will be the provision of technical guidance for programmers and projects, including scheduling and co-ordinating.

Programmer/Analysts
to c.$28,800

Considerable programming experience and some systems design experience are required, so that support for complex programming projects may be given.

If you are interested in finding out if your experience matches our requirements more closely, please contact Joan Ainsworth on 01-600 5666 extension 3533 or write to her at Manufacturers Hanover Trust Company, Queensbridge House, 60 Upper Thames Street, London EC4V 3EN.

developing the banking systems of the future

WE URGENTLY REQUIRE EXPERIENCED COBOL PROGRAMMERS LIVING IN OR NEAR HERTS, PREF. WITH VAX AND/OR IBM EXPERIENCE

IBM

IBM DOS PL/1	ANALYST/PROGRAMMER
IBM DOS COBOL	ANALYST/PROGRAMMER
IBM DOS COBOL (+ MAINTENANCE ASSEMBLER FOR EAST MIDLANDS)	ANALYST/PROGRAMMER
IBM ADABAS NATURAL + PL/1	ANALYST/PROGRAMMER
IBM DOS CICS DL/1 COBOL	ANALYST/PROGRAMMER
IBM OS/MVS CICS COBOL	ANALYST/PROGRAMMER
IBM OS/MVS IMS DB/DC COBOL	ANALYST/PROGRAMMER
IBM 4341 DOS/VSE COBOL CICS VSAM	PROGRAMMERS
IBM 4300 MVS PL/1 CICS	TEAM LEADER
IBM 4300 DOS/VS ASSEMBLER	SENIOR PROGRAMMER
IBM 3032 OS IMS DB/DC	ALL LEVELS
IBM SYS 38 RPG3	ANALYST/PROGRAMMER

ICL

ME29 TME COBOL	PROGRAMMER
1900 G2 COBOL	PROGRAMMER
1900 G2 PLAN	PROGRAMMER
2900 DME COBOL IDMS TPS	PROGRAMMER
2900 VME/B COBOL IDMS TPS	ANALYST/PROGRAMMER

OTHERS

UNIVAC 1100 WITH EXEC 8 FORTRAN WITH FINANCIAL EXPERIENCE	ANALYST/PROGRAMMER
HONEYWELL 316 ASSEMBLER	ANALYST/PROGRAMMER
VAX COBOL	ANALYST/PROGRAMMER
MICROPROCESSOR + ASSEMBLER	ANALYST/PROGRAMMER
PDP 11 RSX-11M MACRO-11	ANALYST/PROGRAMMER
VAX BASIC/COBOL	PROGRAMMERS
B6800 COBOL DMS2 GEMCOS	ANALYST/PROGRAMMER
M6800/T9900 ASSEMBLER/FORTRAN	SOFTWARE PROGRAMMER
ANALYSTS	
1 DATABASE KNOWLEDGE	
2 PROJECT LEADER (1 YEAR CONTRACT, N. HOME COUNTIES)	

SAUDI ARABIA

PL/1 IMS DB/DC JCL TSO/SPF	ANALYST/PROGRAMMERS
COBOL IMS DB JCL TSO/SPF	ANALYST/PROGRAMMERS
PL/1 TSO/SPF + SIMULATION LANGUAGE	PROGRAMMERS
PL/1 IMS DB JCL TSO/SPF	ANALYST/PROGRAMMERS

SYSTEMS ANALYST WITH JCL OPTIMIZING EXPERIENCE.
SYSTEMS ANALYST WITH STRUCTURED ANALYSIS EXPERIENCE.

(9780)

SYSTEM PROGRAMMER

MVS?

CICS?

SNA?

Consider what you could be doin

Our client is a world leader in advanced transportation technology w" global network of subsidiary and associate companies in over 30 c tries. At the centre of this sophisticated organisation is one of the l largest and most impressive data-processing facilities.

At its London headquarters several multi-million pound on-line, d base projects are under way. These will maintain the company's p dominant position into the next decade.

The company is aware of the vital importance of systems program in its data-processing strategy and believes in developing their abi within the organisation. It is therefore committed to substantial inv ment in technical and related training and, in an environment where pace of design and implementation is rapid, ability is the only criterion advancement to senior opportunities.

In order to continue to create and maintain the systems software nee to achieve major development milestones, our client would like to h from ambitious systems programmers who are capable of exploit their current experience in an innovative and dynamic environment.

CICS

Working closely with applications teams, the TP group will hav central role in the following developments:

- Major expansion of the network to 450 terminals
- Integration of mini computers
- Support for large real time systems running und CICS 1.5

MVS

The operating systems team will be involved in some major softw upgrades. These will include:

- Implementation of MVS/SP3
- Installaton of HSM in preparation for a Mass Storage System
- Software support for IBM 3380 disks

The company offers attractive salaries and the usual benefits associated with a large organisation.

If you would like to develop your career in this prestigious environment, telephone James Attewell on 01-567 5501 or clip the coupon below.

D.P. RECRUITMENT LIMITED
FREEPOST, LONDON W5 2BR
TELEPHONE: 01-567 5501
(24 HOUR ANSAPHONE)

NAME.....
ADDRESS.....
HOME TEL.....
WORK TEL.....
EXT.....

A healthy contract by the sea in the prosperous Bournemouth & Poole area

Our clients require very high calibre professionals to work on long contracts in a beautiful area of the country. The work will be on extensive systems development in superb office accommodation.

For further information and details of full benefits of contracting with us, call Ginny Ling to arrange an appointment.

Programmers
IBM OS COBOL (Good JCL).

Programmers
CICS COBOL.

Analysts
UNIT LINKED SYSTEMS EXPERIENCE.

Analysts
IMS DB EXPERIENCE.

Senior Consultant

HONG KONG

£ Excellent (Tax free) + full relocation

Our client is without doubt the most successful Computer Systems Organisation in the Far East. Through dynamic growth, it has established a preeminent position as the leader in providing complete systems solutions at the highend of the technology spectrum.

Operating through a number of regional offices, the services of the Group are widely used throughout the Asia-Pacific region in the commercial and industrial sectors. The company has installed systems for the petroleum, shipping, banking, finance and insurance industries. Systems have also been installed in a variety of Civil Service divisions and the Group enjoy Government sponsorship in order to promote computer technology in what has become one of the world's most dynamic business regions.

The 1980's will see further significant growth, and in order to keep pace with business demands in the Hong Kong office, an additional SENIOR CONSULTANT is required.

Candidates, almost certainly working in a systems house environment, will be required to perform consultancy and project management roles. You will have considerable experience of commercial systems coupled to the ability to "sell" software services and turnkey projects. The position demands a high level of personal drive and initiative coupled to the ability to inspire and develop a close-knit team. A knowledge of DEC's SYSTIME system software (RSX 11, VMS etc) is highly desirable.

The company has a commitment to the highest standards of performance and expect the same of their management staff. They provide an outstanding working environment and offer exciting and rewarding career prospects.

The starting salary is excellent and tax-free. The initial contract is for two years but is renewable and Accommodation, Return Air Fare and Free Medical Insurance are amongst the range of additional benefits offered.

Contact Ref: MT/100 for immediate appointment for interview.

Knight
01-491 4706
OR WHEN BUSY 0 439 3481
14 Old Park Lane, London W1Y 4NL.

UNIVERSITY OF ESSEX
Department of Computer Science
Micro-Processor Systems Engineers

Applications are invited for two posts of Micro-Processor Systems Engineers in the Department of Computer Science (Computer Survices). Salary on Computer Officer Grade 1A (£6,070-£10,675).

The duties of these posts will include the design, development and maintenance of specialist hardware and software and the provision of consultancy services in both hardware and software aspects of micro-processors in users throughout the University. Applicants should have a degree in computer science or the hardware side or similar qualifications and relevant experience.

The successful candidates will be expected to contribute to the general operation of the Computing Service and will join an existing programming group reporting, via its manager, to the Assistant Director of the Computing Service.

Applications (nine copies) including a curriculum vitae and the names and addresses of two referees, should reach the Registrar (quoting AG/1786/G), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars may be obtained, by 25th June, 1982.

(0753)

COMPUTER APPLICATIONS PROGRAMMER

FARNHAM, SURREY
c£5,600-£8,000

Gang-Nail Software (part of the Rodland Group of Companies) is a rapidly expanding software house/consultancy with a number of well established customers and systems in the Timber Engineering Industry.

We require a Fortran or Basic programmer familiar with interactive graphics applications to assist in the improvement and support of our packages.

Please apply in writing quoting reference CW to Dr J. M. Nelson, Manager, Gang-Nail Software, The Trading Estate, Farnham, Surrey GU9 9PQ.

An equal opportunity employer.

(9761)

DATA GENERAL NOVA 4

COMPUTER/VDU OPERATOR c. £6,000

Experienced operator required for busy insurance broking computer department.

Good typing skills and accuracy are the prime requirements for this position.

Hours are 9-5 with LV's and interest free season-ticket – loan. Location EC4.

For further details call Richard Hall On 01-248 6455 x 4

ALLIED INSURANCE BROKERS

9786

METROPOLITAN BOROUGH OF SEFTON
FINANCE DEPARTMENT

HEAD OF COMPUTER SERVICES

£12,690 – £13,884
(P.O.2 6-10)

This post is one of four third-tier posts in the Department and is responsible for the management and development of computer systems throughout the Council's services. The vacancy arises from the retirement of the present holder.

Candidates should have several years' successful management experience plus the enthusiasm, drive and ability to effect the changeover from ICL 1903T to an ICL 2955 scheduled for delivery in July 1983) and to develop the 100% removal expenses are payable in appropriate cases. Further details and application forms, returnable by 11th June 1982 available from Personnel and Management Services Officer, Chief Executive Officer's Department, Town Hall, Oriel Road, Bootle, Merseyside. L20 7AE. Tel: 051-922 4040, extn. 324.

Canvassing will disqualify.

(9678)

Computer Sales £10K Basic + Car
Fast expanding company need experienced sales people with either Micro or Mini exp to cover London & Home counties.

Sales Exec £15K Basic + Car
Exp Sales execs to sell new line of video terminals. This company offer good management prospects for ambitious people.

Field Engineers £10K + Car
This company need engineers for London Home Counties. Exp on terminals or good TV background acceptable.

Senior Engineers £13K
Someone who has good production process exp to test your support. This company are expanding and promotional prospects are good.

Micro Process Engineer £15K + Car
Looking for degree level person to deal with 5100 computers will also have knowledge of CP/M Prog language.

Computer Sales £9,500 Basic + Car
If you have exp selling computer peripherals or have a good background selling office products than this London based company need people to cover all of London and Home Counties.

Ring Gillie Pateman on 01-491 3438

(9793)

NETWORK
18 James Street LONDON, W1

An expanding major manufacturing Group wish to make the following senior level appointments to their Group Services Headquarters in Johannesburg:

PROGRAMMING MANAGER

Overall responsibility for all aspects of programming, staff, costing etc.

Data base experience with comprehensive knowledge of computer languages.

SYSTEMS ANALYST/DESIGNER

Management Services Manager, Designate

Responsible for all systems development, hard and software selection, revision of now and existing systems.

Applicants should preferably have I.C.L. backgrounds with approximately 10 years experience in similar capacities.

The remuneration package includes attractive salaries plus car, bonus, medical aid, pension fund and assistance with relocation for these positions.

Interviews will be held shortly in the United Kingdom by the Group Services Manager.

For further details and application form please apply to:–

Listgrove Limited
5th Floor, Woolworth Building
102 New Street, Birmingham B2 4HQ.

Telephone: 021-643 1944.

Systems Programmers

(MVS-JES3)

Join in the search for more energy
Salaries £9K-£13K

Geophysical Service International (GSI), the world's leading petroleum exploration company, is looking for Systems Programmers to be based at their new computer complex in Bedford.

You will be part of a team responsible for maintaining and supporting an MVS-JES3 operating system on a large IBM mainframe utilising the latest state-of-the-art hardware and software technology.

Initial training will include 4-6 months temporary assignment at our major data processing centre in Austin, Texas.

These are exciting career opportunities open to individuals with a minimum of 2 years' relevant system programming experience, preferably including MVS internals.

Successful candidates will be offered attractive salaries in line with experience, together with an attractive benefits package which includes relocation assistance where applicable.

Interviews will take place during late June, so call or write NOW for an application form to: Gwen Ventris, Personnel Department, Geophysical Service International, Manton Lane, Bedford MK41 7PA. Tel: Bedford (0234) 223778.

Geophysical Service International
A Division of Texas Instruments Limited

LBMS RECRUITMENT

Contract Programmers

wanted to join between July and October 1982.

South West Attractive Contract Rates

LBMS Ltd, Projects Division, is involved in an exciting database development project in the South West for a well-established ICL user.

Essential requirements:
- 3 years + COBOL experience
- Good knowledge of VME/B

Desirable requirements:
- IDMS
- TP 2900
- Structured programming

The duration of these contracts will be between 6 months and 1 year.

There are also some vacancies for SENIOR PROGRAMMERS, who need some 2 more years experience than the Programmers.

If you meet the above requirements, and will be available between July and October, please contact Tim Armstead. This is an exceptional opportunity both to work on a major development project, and to reserve your next contract long before the expiry of your current assignment.

L B
M S

Tim Armstead
LBMS Recruitment,
21 Newman Street, London W1P 3HB
Telephone (day) 01-636 4213
(evenings and weekends) Epsom 25 384
quoting reference 1022.

UCA

MAJOR BRITISH MANUFACTURER SUCCESS STORY

With turnover approaching £18 million, this very successful mini computer and systems manufacturer, based in the Northern Home Counties is in a really expensive mood and requires more skilled personnel now. Relocation expenses will be provided to the successful candidates if required.

CUSTOMER SERVICE ENGINEERS

LONDON AND HOME COUNTIES To £8½K + CAR
More alert, qualified people with mainframe/mini or peripheral experience to service its rapidly expanding customer base is now needed. A minimum of ONC + 2 years' experience is essential. Career prospects are excellent and salary is made up of standby and overtime allowance.
CW22/8

SYSTEMS PROGRAMMERS

HERTS To £10,500
More alert people are required to provide software technical skills in the area of dump facilities/load facilities and debugging aids using low level language. Successful candidates should have a background of implementing software that works and the ability to produce associated documentation.
CW22/9

(SENIOR) ANALYST PROGRAMMER

HERTS £9,000 to £12,000
More alert people are required to design, specify and document COBOL, CORAL & TP systems for both Commercial and Scientific applications. These people will be in the forefront of technology as new products are coming along all the time. So work will be both extremely interesting as well as rewarding.
CW22/10 MICHAEL

'MAY' BE FOR YOU!

BANKING SYSTEMS ANALYST

CITY To £13,000 + Perks
A small bank based in the City with a SYSTEM 38 now requires someone with banking or similar background who would like to work in a small friendly team. RPG III is not essential but would be useful as there is also an Analyst/Programming vacancy.
CW22/7 TRICIA

ANALYST PROGRAMMER

BERKS £9,500+
We have a commercial company who require an experienced analyst/programmer with an ICL background for their support group. The firm's latest acquisition is an MB26, so if you have experience on this machine you are a more than likely candidate. Ring now for further details.
CW22/5 TRICIA

SENIOR SYSTEMS ANALYST

KENT To £12,000
An insurance background is not essential but is certainly an advantage to join this ICL based organisation. A nice mortgage subsidy after a year is only one of the perks working for this company. They have excellent working conditions and the countryside around is superb. Of course the work itself is extremely rewarding and will do your career no end of good.
CW22/6 TRICIA

RPG PEOPLE

HOME COUNTIES to £10,000
We are looking for experienced RPG Systems 34/38 Programmers and Analysts Programmers for multi various vacancies in C. London; Enfield, Bromley, Horsham and South West Middlesex plus other locations. All these companies offer super opportunities for career progression plus relocation expenses and one offers banking perks. Please ring now.
CW22/4

CONTRACT PEOPLE WANTED NOW!

IBM PL/1 ASS DOS/VSE	Programmer	London
IBM PL/1 CICS TSO/SPF	Programmer	Middlesex
IBM 8100 COBOL	Programmer	C. London
IBM SYS 38 RPG3	Programmer	London
IBM SYS 34 RPG II Banking	Programmer	C. London
ICL VME/B IDMS COBOL	Programmer	S. London
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CW22/2 MICHAEL

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LONDON/MIDDLE-EAST £12,000 to £22,000
A large well-established consultancy in the forefront of strategic planning and Company DP assessments, requires consultants who are young (to 38) yet can advise at the highest levels. A minimum of 6 years in computers is essential plus the ability to communicate with clients who expect a first-rate service. Actual computer background is not important although preference will be given to latest technology products in communication and real-time system.
CW22/3 MICHAEL

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For more information on these and many more vacancies please call Harvey or Lynda on 01-242 0076 or 01-404 4339.

(0767)

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ANALYST PROGRAMMER	Croydon	DEC RSX/RT11 Macro
ANALYST PROGRAMMER	Kent	DEC/VAX BASIC
ANALYST PROGRAMMER	London	PL1 CICS ADABAS
DESIGNER	Croydon	IBM Cobol IMS DB/DC
ANALYST PROGRAMMER	Croydon	IBM Cobol IMS DB/DC

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A recently created Sales Division, recognised as the fastest growing sector of the company, was formed to capitalise on the rapid growth of the UK client base and business (approaching a turnover of £10M), providing the future management for planned branch offices and divisions.

The continued spectacular development of this division offers the opportunity to sell a range of products for vital management systems to both new and existing clients in well defined market areas.

This will prove most attractive to the above average sales executive, wishing to add marketing experience and team leadership to their success in sales.

Ideally, you will have a proven sales track record with a service bureau, major computer supplier or software house, and have a good understanding of the computer industry in general.

For further information and immediate confidential interview, contact Peter Dudgeon on 01 935 0671 (24 hour answering service) or 01 674 8627 (evenings and weekends).

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Telephone 01-373 3063

Jnr. Macro-11 Progs.

E.E.C.: Pkg. to £12k

A number of **Macro-11 Programmers**, willing to relocate overseas for a minimum of 12 months, are required to join the Italian and German offices of a leading British Systems and Software House. Suitable applicants will be graduates with a minimum of 12 months' real-time programming on a PDP-11 configuration running under RSX 11/M. Fluency in Macro 11 is, of course, essential, but candidates able to offer additional skills in Fortran or Pascal are particularly encouraged to apply. Applications experience should, ideally, have been gained in a data communications or process control environment. **Ref. L/20/A**

Pascal/Unix

South England: Salaries to £10.5k

A Systems and Software supplier, renowned as one of the U.K.'s leading high technology companies, is currently seeking **PASCAL Programmers** for its software development group based in Southern England. Suitable applicants will be graduates in a numerate discipline with at least one year's industrial experience in a real-time scientific environment. It is essential for all positions that you offer fluency in PASCAL preferably gained on a mini or micro-computer running under UNIX. In particular, our client will favour applicants who have had exposure to PDP-11 or VAX 11/780 machines. For the more senior positions, you should have some knowledge of Computer Aided Engineering, and, obviously, demonstrate management potential. **Ref. L/20/B**

RSX-11 Applications & Syst.

Hants/Surrey: Salary to £12k

On behalf of the Consultancy and Software Services Division of an E.E.C.-based company we are seeking a number of **Systems Engineers and Applications Programmers.** Software programming expertise should include fluency in a high level language such as Pascal or Fortran, whilst some involvement with an Assembler will be considered a useful secondary programming skill. In certain cases candidates must have actively participated in the development of a distributed processing system where either PDP-11/RSX or VAX/VMS hardware and software is utilised. Additionally, the company wishes to recruit for its Research & Development Unit a number of Programmers who are familiar with M.O.D. hybrid systems where stringent programming and design specifications within a multi-microprocessor environment are employed. **Ref. L/20/C**

Data Communications

Central London: Salary to £13k

A renowned supplier of Hardware and Software Systems is seeking a number of **Data Communications and Telecommunications Designers/Engineers** for its Central London operations. Successful candidates should have at least one numerate degree and be fully familiar with recent product developments in the areas of Local/Remote Area Networks, Word Processors and Office Automation Systems. Of special interest will be those candidates who have a profound knowledge of data communications, protocolling techniques, ie X-25, HDLC/SDLC. Candidates who have had recent experience of software programming and systems design in a high level or block structured language will generally receive a salary premium. Good personal presentation skills are of paramount importance since you will be expected to liaise with both technical management and non-technical personnel. All positions will entail a degree of travel within the Home Counties areas and occasionally overseas **Ref. L/20/D**

Graphics/CAD

Home Counties: Salaries to £11k

A market leader specialising in the production of computer systems for design applications is currently seeking additional **Systems Programmers and Applications Support Consultants.** Suitable applicants will be numerate graduates, preferably with a degree in either Mechanical or Civil Engineering. Subsequent industrial experience should include at least one year's Fortran or Assembler programming experience in either a technical or scientific environment. In particular, knowledge of Finite Element Modelling, Numerical Control or Computerised Drafting Systems would be of distinct advantage. All positions will involve a degree of national and international travel and, in certain circumstances, a company car will be provided. **Ref. L/20/E**

Management Consultants

Central London: Salaries to £18k + Car

A U.S.-owned international Consultancy is currently seeking additional **Management Consultants** for its Central London operation. Suitable applicants will be graduates who have at least five years' data processing experience and have probably progressed into a management role. You should offer a wide-ranging knowledge of hardware and business applications, but of paramount importance will be the ability to identify problems from both a business and technical point-of-view and to communicate with personnel at all levels. In particular, our client has a stated preference for applicants who have had exposure to IBM hardware and are familiar with structured design techniques, database management systems or networking. The above-average salaries offered reflect the importance of employing Consultants of a high standard to maintain the Company's excellent professional reputation. **Ref. L/20/F**

Comms. S/W Designers

South Wales: Salaries to £11k

A world-leading supplier of telecommunications equipment has a number of requirements for **Communication Software Designers** to join its Research and Development facility. All candidates must possess at least one degree in Computing Science or Electrical/Electronic Engineering and have had two years, or more, in an industrial environment. Past responsibility for hardware implementation, as well as software design of low level protocols up to, and including, Transport Service will be favoured. Applicants should, preferably, have hands-on experience with a leading MDS and be fluent in an Assembler and one or more high-level block structured languages. **Ref. L/20/G**

Firmware Programmers

Cambridgeshire: Salary to £10k

A hardware manufacturer and software supplier, with a rapidly expanding customer base, has a number of vacancies in its Research and Development Department. Applications are invited from those with experience in the design and production of single or multi-board computers, interface design and microcode assembler programming. All candidates must be graduates and thrive on working in a loosely structured but dedicated environment where technical expertise is highly rewarded. **Ref. L/20/H**

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A major recruitment supplement

to coincide with a major computer show

Belle Vue
MANCHESTER
June 22-24 1982

To coincide with Compec North the June 17 issue of Computer Weekly will contain a special recruitment supplement. Editorial will cover the computer job market in the Midlands, North of England and Scotland. Topics covered will be relevant and written by industry experts and staff writers covering a wide range of subjects linked to the job market in these areas. The issue will be distributed in the normal way to all Computer Weekly readers throughout the U.K. and will also be available to visitors from the Computer Weekly stand at Compec North

This issue is perfect for recruitment advertisers -- the editorial environment is right, the target audience is captive, and as Computer Weekly has a total circulation of over 100,000 copies every week, advertisers can be sure their advertisements will be read.

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SHIFT MANAGER

Cambs/Lincs Borders

c-£11,000

This well established yet still expanding IBM installation provides a complete service to users throughout this progressive and successful company. As a result of a re-organisation within the operations function there is a vacancy for an additional Shift Manager.

Emphasis is given to providing a high service level to users, running a 24 hour shift 6 days each week and this will include the provision of an on-line telecommunications based system to remote users throughout all shifts.

Candidates for this responsible position must have had extensive computer operations experience including some significant supervisory experience in IBM mainframe installations. Preferably this should have been gained in a DOS environment as our client operates a dual 4341 installation under DOS/VSE. Knowledge of JCL and utilities and other major IBM software including VM and CICS would be useful.

Previous experience should also include operating in an installation with a major on-line TP facility with a demand from users for high service levels on that system.

Salary will be negotiated in accordance with the indicator shown and will reflect the ability of the successful candidate and also the senior level of this position. Relocation expenses and an interest free bridging loan are available in appropriate cases.

Contact Ivor Norton quoting reference CW/8222

Ivor Norton Management Services Ltd.
RECRUITMENT CONSULTANTS
P.O. Box 63, Copthall Tower House, Harrogate, HG1 1TS.
Telephone Harrogate 66628
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ANALYSTS & PROGRAMMERS

Cambridgeshire

Our client has a successful IBM mainframe installation and developments include TP based systems and an increasing use of distributed processing.

Applications are invited for the following vacancies:

ANALYSTS **£8,000 to £9,500**

Candidates should have a minimum of 1 years systems analysis experience, together with a sound programming background. Appropriate remuneration will be agreed with the successful candidates which will reflect both their experience to date and also their potential for the future. (CW/8220)

PROGRAMMERS **£7,000 to £9,000**

Candidates should have from 2 years experience programming in PL/1 or COBOL working on a range of commercial applications. Training will be given to candidates in PL/1 or COBOL as appropriate. (CW/8221)

General conditions and prospects for career development are first class and where appropriate a generous relocation package would be available.

Contact Ivor Norton quoting the relevant reference.

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What ManuLife will look for in return is a successful record in **Business Systems, Computer Systems,** or **O&M,** spanning at least eighteen months. In addition, you would also be expected to have a logical approach to problem solving, and respond well to fresh challenges as they confront you.

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Benefits are good, including **subsidised mortgage facilities,** free restaurant and flexitime.

For full details, and application form, please telephone 01 439 8591, or alternatively return the coupon below.

Initial interviews can be conducted up to 8.00pm each evening, or on Saturday mornings, by appointment.

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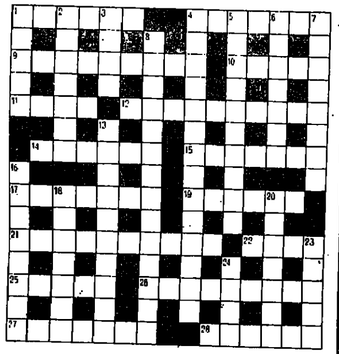
CROSSWORD

Prize Crossword No 29

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, June 11. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name..... (Miss, Mrs, Ms, Mr)

Address .....

.....

Telephone.....

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed ..... Date .....

ACROSS

1. Five rings produce nothing in witchcraft (6)
4. They make digests of laws, transferred to discs (7)
9. Fight by the club to get metal for recycling? (5-4)
10, 11. Portable weapons that pygmies have? (5-4)
12. A master delayer, a lead swinger (10)
14. Swallow's no good when sucked into air-pipe backwards (6).
15. Illustration used in test to please? Not half! (7)
17. Gets free cloaks after 'e joins Society (7)
19. Long narrow cut made by t-turning implement, we hear (6)
21. I'm a nun involved with race, contrary to US interests (2-8)
22, 25. The man to write to for a turban? (4-5)
26. What makes William keen, by the sound of it, to invest (9)
27. Longed to have teacher caught in the act (7)
28. Worthless attempt to carry tree (6)

DOWN

1. You get a long prospect by way of going round the street (5)
2. Chaps having a row are awful moaners (7)
3. Topless cages for birds? Oh dear, I've blundered! (4)
4. Assured I'll have an associate, between you and me (14)
5. Surprisingly, I'd get Danes appointed (10)
6. Pew rent procuring a cruise? (3-4)
7. Unhappy about half-dollar that is paid monthly? (8)
8. Luxury in hotel room? Awfully bad if sent after an interval (9,2,3)
13. Drink with journalists or censor? (10)
16. Paid back Russian editor without enjoyment (8)
18. Big holes right inside cases (7)
20. Verifies, from what we hear, money orders (7)
23. Revolutionary uplifted by the race (5)
24. Retreat, showing a natural aptitude when losing head (4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

We are a medium-sized company involved in the manufacture of advanced aerospace electronics and seek to recruit for our System 34 installation an

ANALYST/PROGRAMMER

with 5 years' computing experience with a minimum of two years using RPG II. Experience of manufacturing/production applications is preferable and candidates should have implemented a project, completing all the necessary programming and analytical work.

The successful applicant will be expected to deputise for the Computer Manager in his absence, write add-on systems to MAAPICS and our in-house programs and assist in the additional packages such as payroll and financial modelling.

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(9811)

GRAMPIAN REGIONAL COUNCIL
Location—Aberdeen

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ANALYST/PROGRAMMER
(Ref. 313/82) £7,620-£10,596

Both posts form part of a team under a project leader and are of senior status. Applicants should be experienced systems designers with COBOL programming background and be thoroughly conversant with batch and communications work. Equipment includes an ICL 2960 being supplemented by ICL 2946. All running under D.M.E.

Salary placing in accordance with experience. Assistance with removal and legal expenses in appropriate cases.

Applications, in writing, giving full details of relevant qualifications, experience, age, present salary and employment, together with names of two referees, should be lodged with Director of Manpower Services, Woodhill House, Aberdeen, AB9 2LU.

(9812)

University of London Computer Centre

London Network Team

Applications are invited for a new post in the University of London Network Team. The Team is responsible for the planning and implementation of Data Telecommunications Development throughout the University and operates from the University Computer Centre.

University communications are in the process of conversion to X25-based packet switching. The requirement is one of the largest of its kind based on a single Computer Centre. Other relevant aspects are the development of appropriate local area networking with and between colleges, and the planning of new services to operate over the entire network.

The post will involve a good knowledge of traffic analysis and prediction, the assessment and planning of the conversion of host systems attaching to the network, and involvement in the development of national working groups.

Applicants should have a good degree in Science or Engineering. Experience in systems programming and/or the development of communication's systems would be very advantageous.

Salary commensurate with age, relevant qualifications and experience will be in the range £6,070 to £12,860 (both under review) plus £1,035 London Allowance.

The appointment will be for a fixed term terminating in September 1985.

Application forms are available from: N. Savage, University of London Computer Centre, 20 Guilford Street, London WC1N 1DZ. Tel. No. 01-405 8400 Ext 341.

Applications close three weeks after publication of advertisement.

(9766)

SOFTWARE ENGINEERS

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Systems Analyst

Salary Range £7,850 to £10,000
(Ref: B.732)

Bromley has replaced its ICL 1903T computer with a 6MB 2966 machine running under CME/GIII and VME 2900 and requires a Systems Analyst to work as a member of a project team responsible for all aspects of system development. The analyst liaises directly with user departments and is responsible for defining their requirements and the design, implementation and maintenance of systems.

At least two years' experience as an analyst is required. Experience of structured programming, database, T.P., and implementation of packages would be an advantage.

The successful applicant will receive a starting salary within the above salary range commensurate with experience and the career structure of the installation. Additional benefits include flexible working hours, excellent leave conditions, interest free season ticket loans, canteen and social club facilities..

LOCATION—Close to Bromley Town Centre with its excellent shopping facilities and easy access by fast trains to both Central London and the Kent countryside.

Further information from Computer Development Manager, Tel; 01-464 3333, Ext. 3265. Closing date June 17th, 1982.

Application forms from the Assistant Chief Executive (Head of Manpower Services), Bromley Civic Centre, Rochester Avenue, Bromley, Kent. Tel: 01-464 3333, Ext. 3326 quoting reference.

London Borough of **Bromley**

(9800)

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(9732)

METROPOLITAN BOROUGH OF WIGAN

Wigan College of Technology, Parson's Walk, Wigan.
Required for 1st September, 1982, Department of Professional Administration

LECTURER II COMPUTING
Post no. 0 60 82 56
Salary range £6,464-£10,431 (under review)

To teach across a range of course work requiring a wide understanding of systems analysis together with professional experience of commercially viable computer applications.
Application forms available from and returnable to the Vice Principle at the above address. Closing date: 11 June, 1982.

(9680)

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Programmer is required to take responsibility for On-Line applications on Dual DEC 11/70's using DE under RSTS/E.

There will be opportunities for involvement in the development of new applications.

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(9645)

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SALES BIT

Quality of Management—12

Failure to train salesmen costs industry dearly

OUR associates, Advance Marketing Management, are always kept busy providing sales and management training to a broad selection of computer companies. Participants undoubtedly gain considerable benefits from these courses which cover a wide variety of subjects from basic selling techniques to the sober realities of finance.

Yet when I observe the computer industry at large I am astounded by how few organisations have any real commitment to sales training. Of those which make such an investment, many do so in an impulsive and haphazard manner.

"We've got a new salesman starting next week. We'd better tee-up a course for him somewhere!"

"Fred Jones seems to be having trouble getting appointments. Maybe we should send him to a course on telephone techniques!".

"The ABC sales training company say they are running a course on letter writing. Who can we send?"

Relative to the number of computer companies in operation only a small number have any formal plan for training, and even fewer have the appropriate financial approval within their sales budget. Yet even at this level I am only talking about training for established salespeople – refresher courses, product training, and so on.

When it gets down to totally comprehensive training of inexperienced salespeople there are probably no more than four companies within the industry which have both the capability and commitment to be able to take in raw recruits and turn out thoroughly trained professional sales people.

From my day-to-day exposure within the recruitment business I continually see the price the computer industry is having to pay for failing to invest in producing new salespeople.

Well trained, accomplished sales personnel are now such a rare commodity that many companies find themselves paying "over the odds" for less than adequate performers, and as the industry continues to expand the problem worsens at an ever-increasing rate.

This failure has not sprung from the economic pressures of the last two years but from the complacency and neglect of management across the industry over many years.

Even the completely trained and thoroughly experienced salesman needs regular training. Between two and four weeks every year is a reasonable objective and should contain a balance between product, applications and selling discipline.

However, it is important to consider the broad implications and objectives of training rather than just the main topic.

Sales training must revitalise and consolidate the confidence and capabilities of the individual as well as reinforcing the "esprit de corps" of the whole sales team.

Training must be well organised and stimulating, professional enough to gain the respect, even admiration, of all participants. Salespeople should complete a training course full of enthusiasm to get into the field confident of success and keen to try new-found skills in a "real life" selling environment.

How often does that occur, even within those companies which actually make a commitment to training? Not very often, I suspect.

Training salespeople is not easy. They are always very demanding students, usually attentive and constructive, but also perceptive and questioning people who probe for weaknesses in the trainer and the subject matter as well as the management and organisation of the educational process. They have little tolerance for the inadequate tutor, be he an external consultant or a direct superior.

It is always necessary to stimulate the interest quickly and earn the respect of any sales training course, otherwise a negative outcome is assured. This could come in all manner of undesirable manifestations, from demotivation to total anarchy.

Next week, I shall be writing about the implications and considerations of running and justifying sales training via both internal and external resources.

Alan Williams

COURSES

■ WORTHING, Sussex, is the venue for the courses offered by MSS in June and July. They include Word Processing in the Modern Office, June 24-25; Advanced RPG II Programming, June 28-30; Database Concepts, July 1-2; Computer Appreciation for Senior Executives, July 1-2; Computer System Design and Implementation, July 12-16; and Cobol Programming for the Experienced Programmer, July 19-21. More information from the Course Registrar, MSS House, 54 Chapel Road, Worthing, West Sussex BN11 1BE. Tel: Worthing (0903) 34755/6.

■ ELECTRONIC Privacy and Authentication Technology is the title of a two-day workship to be held at Hatfield Polytechnic on July 19-20. The topics on Day One will be public key systems, authentication, protocols and related topics. On Day Two DES and other algorithms, software protection, speech systems, standardisation and related topics will be discussed. Accommodation will be available. Details from Mrs Jill Stern, Administrative Assistant, tel: Hatfield 68100, extension 386.

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